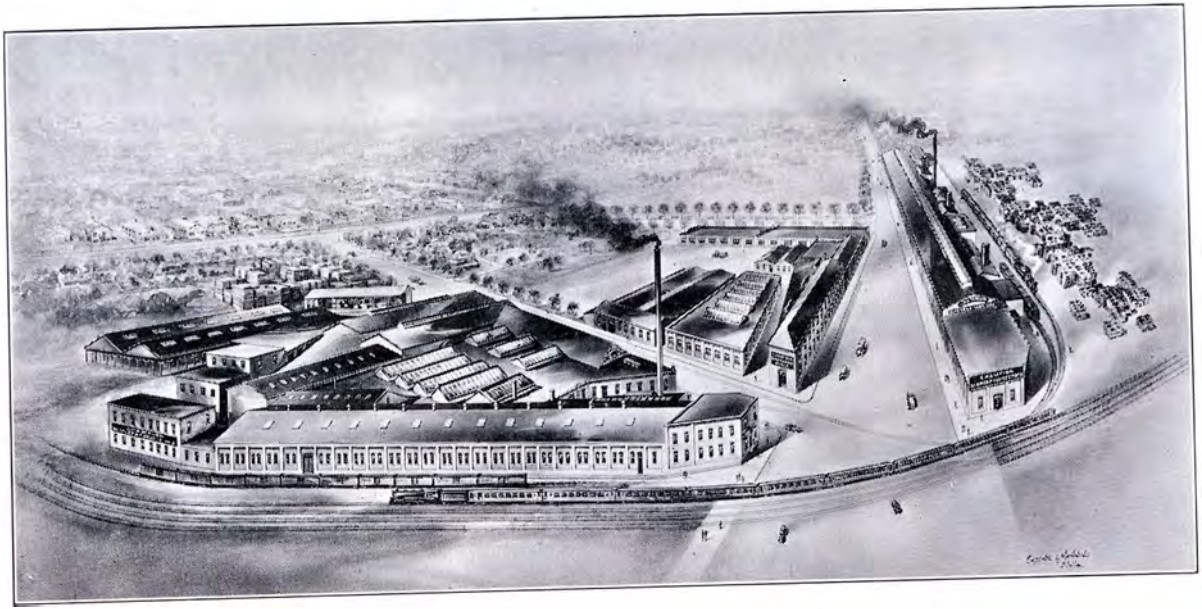
CHAMPION
BLOWER & FORGE CO.
LANCASTER, PA. U.S.A.



C. B. LONG, President
ED. DONOHOE, Vice-President
GEO. HAMMOND, Treasurer
O. H. HERTZLER, Secretary

CATALOGUE NO. 44

ILLUSTRATED CATALOGUE OF

"Champion"

Blowers Forges Tuyere Irons Drills
Chucks Lathes
Power Hack Saw Machines
Grinders Buffers Garage and Arbor Presses
Motor Stands
Screw Plates Taps Dies Tap Wrenches
Thread Cutting Machines
Tire and Axle Shrinkers and Welders
Tire Benders Power Hammers
Punches Shears Exhaust Fans
Disc Wheels
Fans for Heating, Ventilating, Drying
and Mechanical Draft

Manufactured by

THE CHAMPION BLOWER & FORGE CO.

LANCASTER, PA., U. S. A.

CABLE ADDRESS—"CHAMPION LANCASTER" (Pennsylvania)

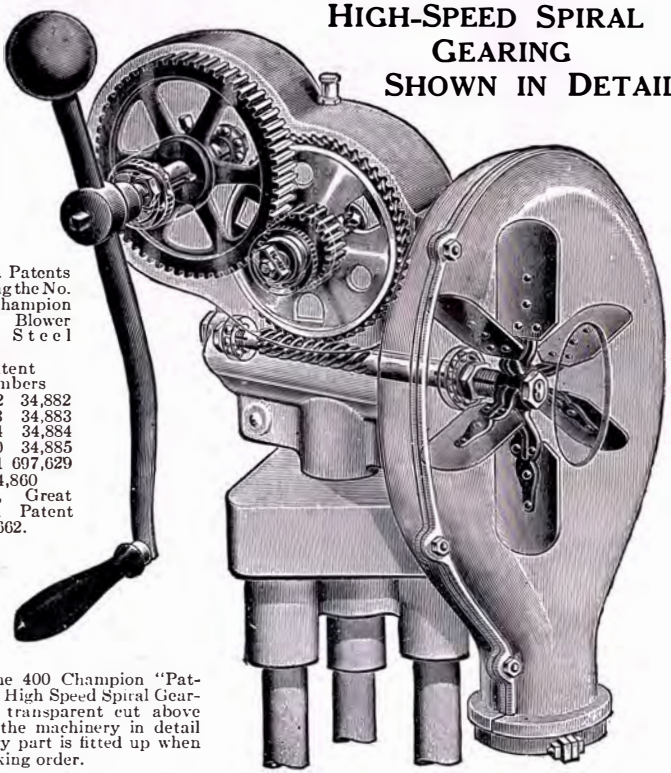
FOUNDED 1875 INCORPORATED 1887

THE 400 CHAMPION "PATENTED" HIGH-SPEED SPIRAL GEARING SHOWN IN DETAIL

U. S. Patents covering the No. 400 Champion Steel Blower and Steel Forges.

Patent Numbers	
676,322	34,882
676,323	34,883
676,324	34,884
34,880	34,885
34,881	697,629
	804,860

Also, Great Britain Patent No. 9,662.



The 400 Champion "Patented" High Speed Spiral Gearing in transparent cut above shows the machinery in detail as every part is fitted up when in working order.

This transparent cut, in connection with the gearing cut on page 3, shows the inner workings of the "Famous 400" Gearing, so that the inexperienced can understand and appreciate its high grade construction.

Crank Turns either way to make a Blast.

Each Turn of the **Crank** produces 46 complete **Revolutions** of the Blast Wheel. All Blower Speeds should be counted before purchasing, **as high speed** of the **Fan Wing** can only make a **High Pressure White Heat Blast.**

IMPORTANT INFORMATION

As illustrated above, the blades on the blast wheel of the 400 Blower are not tapered or narrow, but are the same width at the tip of the blade as at the hub, therefore must throw a larger volume of air than a tapered blade. This wide blade gives the operator full benefit of the blast from every revolution of the crank and with the high-speed spiral gearing produces a white heat pressure blast, equal to a blower run by power.

All this means that the Champion 400 Blower, with 12" fan case and with wide blade blast wheel, produces more volume at a higher pressure than any other 16" hand blower with narrow or tapered blade.

THE 400 CHAMPION "PATENTED" HIGH-SPEED SPIRAL GEARING

The 400 Champion "Patented" High-Speed Spiral Gearing has been manufactured by us for many years and is in use on over a million Champion Steel Blowers and Forges, distributed in every section of the globe.

The 400 **Spiral Shaft with Fan Wing attached** produces **46** complete revolutions of the fan wing to each turn of the crank, therefore is the **only piece** of the entire gearing that runs at **high speed.**

Every piece in the High-Speed Spiral Gearing is built large, powerful and substantial. Fully equal to ten times the high speed required to run a Blower.

The 6-inch **Special Phosphor Bronze Spiral Gear,** and the Tool Steel Spiral Shaft are the same size in diameter and teeth used on **Spirals** running at **20,000 revolutions** per minute, carrying heavy loads, while the 400 Blower running at **one tenth the revolutions,** produces a **white heat blast.**

The 400 Champion Concaved Spiral Gear, riding the Spiral Shaft lengthwise, meshes **eight (8) full teeth continuously, which forever makes lost motion or noise impossible.**

The 400 Champion Steel Blowers and Forges represent the highest possible grades of material and workmanship.

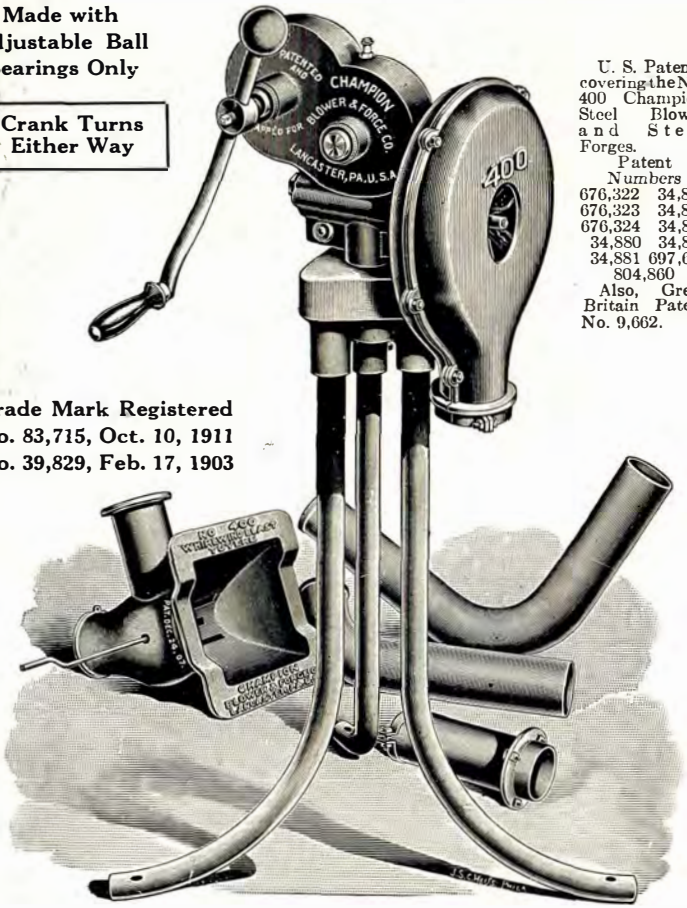
The 400 Champion Ball Bearings are all adjustable with cups and cones lathe-turned from the solid tool steel bar and hardened like glass, then ground and polished to the finish of a mirror, thus making the most perfect and durable High-Speed Adjustable Bearing that can be manufactured.

THE FAMOUS 400 CHAMPION BLOWER

This is the Blower that has Revolutionized the World's Hand Blacksmiths' Fires and Made Them a Most Profitable Business

Made with Adjustable Ball Bearings Only

Crank Turns Either Way



U. S. Patents covering the No. 400 Champion Steel Blower and Steel Forges.

Patent Numbers	
676,322	34,882
676,323	34,883
676,324	34,884
34,880	34,885
34,881	697,629
804,860	

Also, Great Britain Patent No. 9,662.

Trade Mark Registered
No. 83,715, Oct. 10, 1911
No. 39,829, Feb. 17, 1903

THE FAMOUS 400 CHAMPION BLOWER

Made with Adjustable Ball Bearings Only

The Famous 400 Champion Blowers and Forges, after many years of work with over a million in use, unquestionably stand in a class of their own.

The users are their staunchest supporters and it is our desire that those who are not familiar with their value ask what the **Owners Say,** and particularly those who have used them many years, as it is the only blower as good after many years' use as when new.

The High Speed Spiral Gearing with a substantial special Phosphor Bronze Spiral Gear and Tool Steel Spiral Shaft, and both Gear and Spiral Shaft meshing in 8 full teeth continuously, forever makes noise and lost motion impossible.

The 400 "Whirlwind" Blast Anti-Clinker, Heavy Nest Tuyere Iron and complete piping is furnished with the 400 Blower without extra charge. This Tuyere, in combination with the high speed of the "Famous 400" Blower, produces a circular, rotary, "whirlwind," white heat blast which heats iron at least one third quicker and with an equal saving in coal, as no heat is wasted by being blown up the chimney.

The 400 Blower and "Whirlwind" Blast Tuyere represents in every respect the greatest value in a Blast Producer. Its Gearings, in connection with the Adjustable Ball Bearings, are constructed from the highest grade of Special Phosphor Bronze and Tool Steel, turned and finished with special Automatic Machinery, thus making the Blower run in the most accurate and smooth manner that can be constructed by human hands.

Crank Turns either way to make a Blast.

Each Turn of the **Crank** produces **46** complete **Revolutions** of the **Blast Wheel.** All Blower Speeds should be counted before purchasing, as **high speed** of the **Fan Wing** can only make a **High Pressure White Heat Blast.**

No.	*Fan*	*Weight*	*Code*	*List Price*
400	12″	160 lbs.	Facanea	$37.00
420	14″	170 lbs.	Facimile	44.00
421	16″	175 lbs.	Facolta	48.00

The 400 Champion Steel Blacksmith Blower is made for either right- or left-hand fires. Right-hand Blowers always furnished unless otherwise specified.

THE CHAMPION POWER AND HAND BLOWER

A Power Blower that can be run by Hand when Power is not Ready

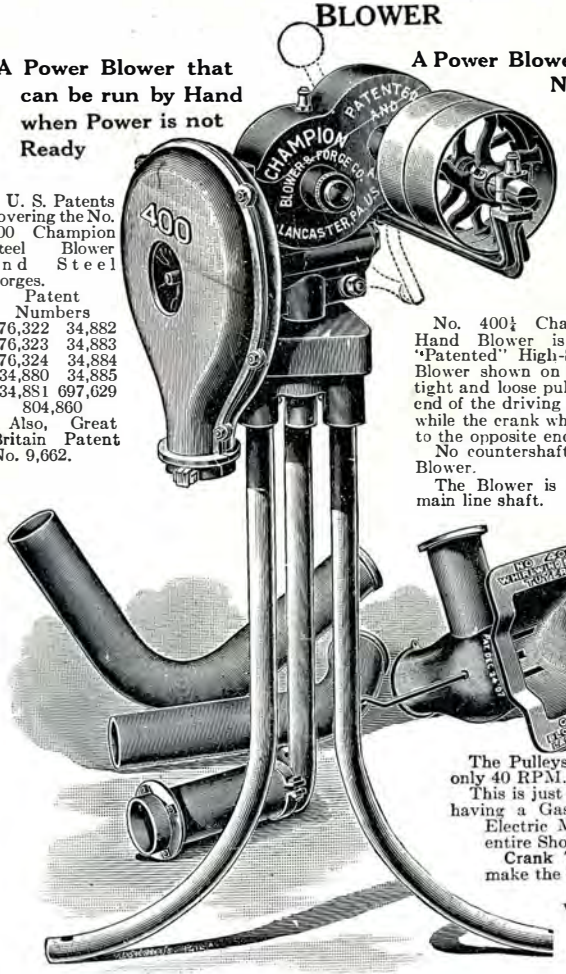
A Power Blower that requires No Countershaft

Made with Adjustable Ball Bearings Only

U. S. Patents covering the No. 400 Champion Steel Blower and Steel Forges.

Patent Numbers	
676,322	34,882
676,323	34,883
676,324	34,884
34,880	34,885
34,881	697,629
804,860	

Also, Great Britain Patent No. 9,662.



No. 400½ Champion Power and Hand Blower is the Famous 400 "Patented" High-Speed Spiral Geared Blower shown on pages 4 and 5 with tight and loose pulleys attached to one end of the driving gear shaft for power, while the crank when in use is attached to the opposite end.

No countershaft is used to run this Blower.

The Blower is belted direct to the main line shaft.

The Pulleys are required to run only 40 RPM.

This is just the Blower for shops having a Gasoline Engine or an Electric Motor for driving the entire Shop.

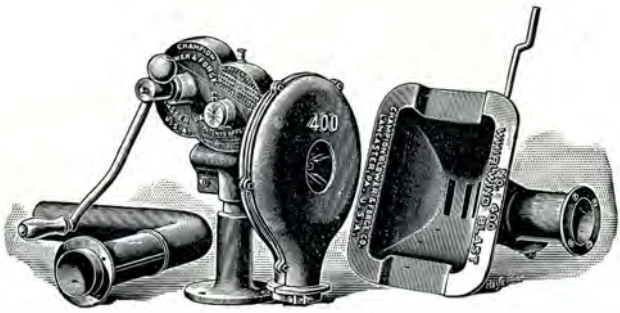
Crank Turns either way to make the blast.

Furnished complete with the 400 "Whirlwind" Blast Anti-clinker Heavy Nest Tuyere Iron and piping without extra charge.

No.	*Fan*	*Weight*	*Code*	*List Price*
400½	12″	170 lbs.	Facoltoso	$48.50
420½	14″	175 lbs.	Facesse	55.50
421½	16″	185 lbs.	Facianassi	59.50

THE FAMOUS 400 CHAMPION BENCH BLOWER

Made with Adjustable Ball Bearings Only



U. S. Patents covering the No. 400 Champion Steel Blower and Steel Forges.

Patent Numbers	
676,322	34,882
676,323	34,883
676,324	34,884
34,880	34,885
34,881	697,629
804,860	

Also, Great Britain Patent No. 9,662.

The Famous 400 Champion Bench Blower is the same Blower as the 400 shown on pages 4 and 5, but instead of being furnished on legs, is fitted with a short pedestal so as to be mounted on a bracket or bench. This Blower is furnished complete with piping and tuyere iron ready to set up, same as the 400 Blower shown on page 4.

No.	*Fan*	*Weight*	*Code*	*List Price*
400 Bench	**12″**	**145 lbs.**	**Fag**	**$35.00**

THE CHAMPION STEEL RIVET FORGES

Made with Adjustable Ball Bearings Only

U. S. Patents covering the No. 400 Steel Blower and Steel Forges.

Numbers	
676,322	34,882
676,323	34,883
676,324	34,884
34,880	34,885
34,881	697,629
804,860	

Also, Great Britain Patent No. 9,662.

The No. 401 Champion Steel Rivet Forge can be seen working on 99 out of every 100 structural steel buildings being built in the United States to-day. The same may be said of all railroads, bridge builders, and boiler makers. The No. 401 Forge has not only been adopted by this class of trade in the United States, but also throughout the entire world.

No. 401.

Champion Steel Rivet Forges have been on the market for many years and are used by the great majority of Railroads, Bridge Builders, Boiler and Structural Iron Workers of the world also very desirable for garages. Nothing was ever seen to even approach them for a strong positive blast. We can guarantee them to increase the work over and above any other make of Rivet Forge 25%. Their Gearing is the "Famous 403" Champion "Patented" High Speed Spiral Gearing. They run noiseless, and can be taken apart for transportation, and again set up in a few minutes. They will produce blasts to weld 3½ to 4-inch iron in ten minutes. No. 401 Steel Rivet Forge is used on 99 out of 100 Structural Steel Buildings constructed. **Crank Turns** either way to make the blast. **Each Turn** of the crank produces **46** complete **Revolutions** of the **Fan Wing.**

No.	*Hearth*	*Fan*	*Height*	*Weight*	*Code*	*List Price*
401	**18″**	**9″**	**30″**	**145 lbs.**	**Facanhoso**	**$35.00**
401½	**22″**	**9″**	**30″**	**150 lbs.**	**Facoti**	**40.00**
401¾	**24″**	**10″**	**30″**	**160 lbs.**	**Facturada**	**45.00**

THE CHAMPION STEEL TOOLMAKERS' FORGES

With Half Hood

Made with Adjustable Ball Bearings Only

U. S. Patents covering the No. 400 Steel Blower and Steel Forges.

Numbers

676,322	34,882
676,323	34,883
676,324	34,884
34,880	34,885
34,881	697,629

804,860

Also, Great Britain Patent No. 9,662.

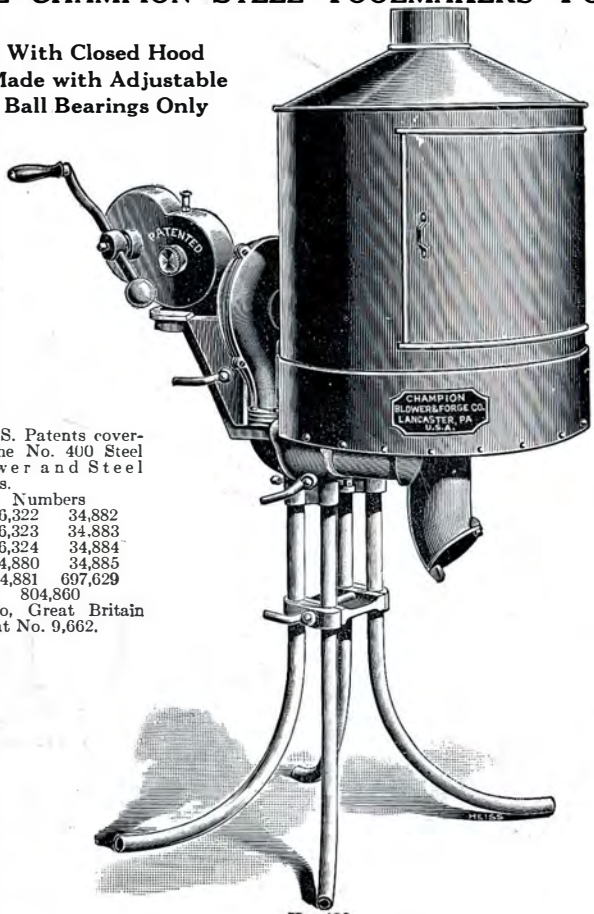
No. 402.

Champion Steel Toolmakers' Forges are like the Steel Rivet Forges on opposite page, the difference being the Half Hood, which makes them a Forge for inside work for Toolmakers, Jewelers, Bicycle Repairers, Tempering, Tank Builders, Miners, Prospectors, making Repairs on Boilers, Steam and Elevated Railroads, and Garage and Oil Field Work. **Crank Turns** either way to make the blast. **Each Turn** of the crank produces **46** complete **Revolutions** of the **Fan Wing.**

No.	*Hearth*	*Fan*	*Height*	*Weight*	*Code*	*List Price*
402	**18″**	**9″**	**30″**	**150 lbs.**	**Fachada**	**$38.00**
402½	**22″**	**9″**	**30″**	**155 lbs.**	**Factivel**	**43.00**
402¾	**24″**	**10″**	**30″**	**165 lbs.**	**Facultatif**	**48.00**

THE CHAMPION STEEL TOOLMAKERS' FORGES

With Closed Hood
Made with Adjustable
Ball Bearings Only



U. S. Patents covering the No. 400 Steel Blower and Steel Forges.

Numbers

676,322 34,882
676,323 34,883
676,324 34,884
34,880 34,885
34,881 697,629
804,860

Also, Great Britain Patent No. 9,662.

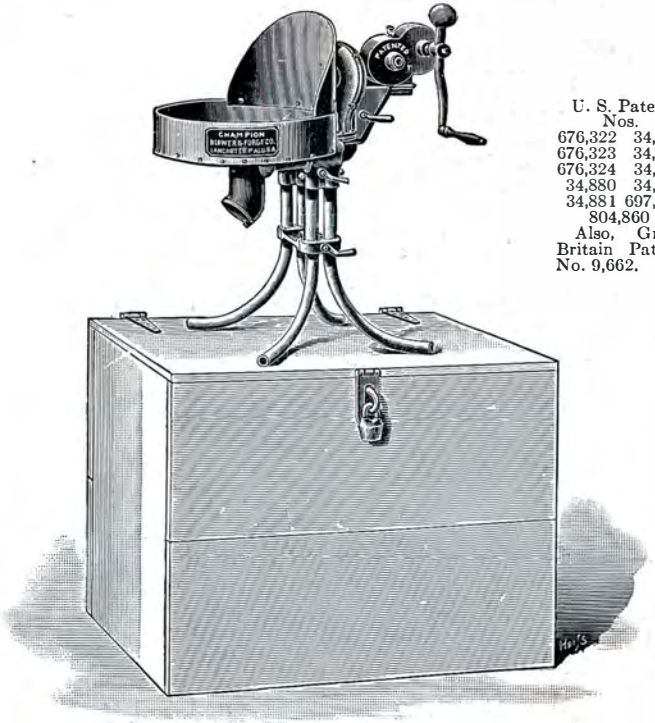
No. 403.

Champion Steel Toolmakers' Forges are like the Steel Rivet Forges on page 8, the difference being the closed hood, which makes them a forge for inside work where combustible material is kept. These forges can be taken apart and again set up with great ease and can be conveniently moved from place to place. The 400 Champion "Patented" High Speed Spiral Gearing is used. For further description see page 8.

No.	*Hearth*	*Fan*	*Height*	*Weight*	*Code*	*List Price*
403	**18″**	**9″**	**30″**	**155 lbs.**	**Fachbaum**	**$40.00**
403½	**22″**	**9″**	**30″**	**160 lbs.**	**Facturar**	**45.00**
403¾	**24″**	**10″**	**30″**	**170 lbs.**	**Factorium**	**50.00**

THE CHAMPION STEEL MINERS' AND PROSPECTORS' FORGE

Made with Adjustable Ball Bearings Only



U. S. Patent Nos.
676,322 34,882
676,323 34,883
676,324 34,884
34,880 34,885
34,881 697,629
804,860
Also, Great Britain Patent No. 9,662.

No. 401½ Champion Steel Miners' and Prospectors' Forge is in size of hearth, and blower same as No. 401 Forge shown on page 8.

This Forge is suitable for Government, Miners', Prospectors', Boilermakers' and Bridge Builders' use wherever a Forge is needed for transportation, where compactness and convenience with large capacity is necessary, we furnish this Forge.

The size of the case required to hold the Forge is 34¾ inches long, 22¼ inches high and 20½ inches wide.

Crank Turns either way to make the blast.

Each Turn of the crank produces **46** complete **Revolutions** of the **Fan Wing.** See pages 2 and 3.

No.	*Hearth*	*Fan*	*Weight of Forge Only*	*Weight With Case*	*List Price With Case*	*List Price Without Case*
401½	**18″**	**9″**	**135 lbs.**	**190 lbs.**	**$42.00**	**$35.00**

Code With Case—**Facondita** *Code Without Case*—**Facoula**

THE CHAMPION STEEL RIVET FORGES

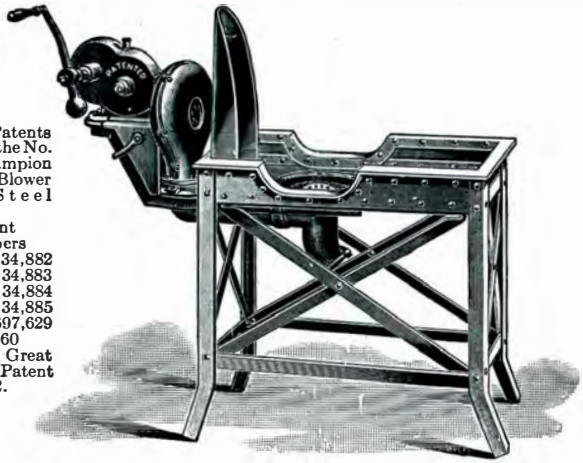
Made with Adjustable Ball Bearings Only

Size of Hearth 24 x 24 Inches **Fan 9 Inches in Diameter**

U. S. Patents covering the No. 400 Champion Steel Blower and Steel Forges.

Patent Numbers
676,322 34,882
676,323 34,883
676,324 34,884
34,880 34,885
34,881 697,629
804,860

Also, Great Britain Patent No. 9,662.



No. 404. With Shield.

No. 404 Champion Steel Rivet Forge has a 24-inch square hearth with angle steel legs riveted to hearth. In construction of machinery for operating the Blower and in connection with size of Fan, this Forge is precisely the same as No. 401, illustrated on page 8.

For many kinds of work a 24-inch square Hearth Forge may be more preferable. The Hearth being larger, naturally there is more surface for fire, coal, tools, etc.

It is a very light, stiff and practical Forge for Garages, Government use, Race Horse Stables, Elevated and Steam Railroads, Bridge and Tank Builders, Boiler Work and Oil Field Work.

The Blower and all machinery can be taken off for transportation.

For further information as to the construction of machinery, ease of operation, etc., refer to pages 2, 3, 4, and 5.

Crank Turns either way to make blast.

Each Turn of the crank produce **46** complete **Revolutions** of the **Fan Wing.**

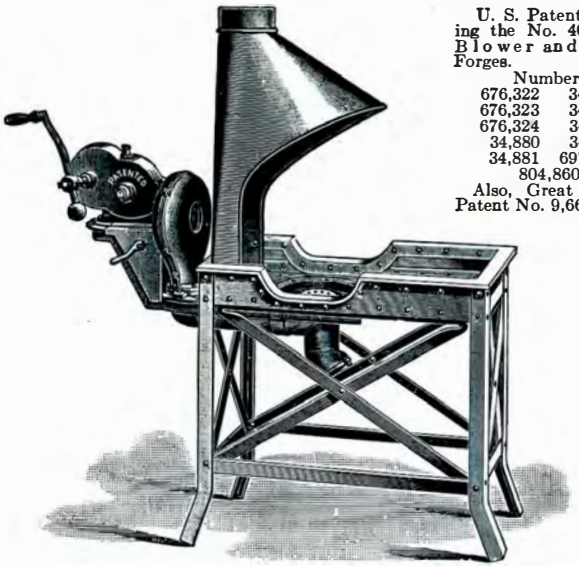
No. 404½ Champion Steel Forge is the same in size of hearth, fan, height and gearing as No. 404 shown above. The only difference between the Nos. 404 and 404½ Forges is the tuyere iron and the arm to which the blower is attached to the No. 404½ Forge, which are the same as shown in cut of No. 406 Forge, page 14.

No.	*Hearth*	*Fan*	*Height*	*Weight*	*Code*	*List Price*
404	**24 x 24″**	**9″**	**30″**	**185 lbs.**	**Facheabais**	**$45.00**
404½	**24 x 24″**	**9″**	**30″**	**230 lbs.**	**Factatos**	**45.00**

THE CHAMPION
STEEL TOOLMAKERS' FORGES

Made with Adjustable Ball Bearings Only

Size of Hearth 24 x 24 Inches **Fan 9 Inches in Diameter**



U. S. Patents covering the No. 400 Steel Blower and Steel Forges.

Numbers	
676,322	34,882
676,323	34,883
676,324	34,884
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34,881	697,629
804,860	

Also, Great Britain Patent No. 9,662.

No. 405. With Half Hood.

No. 405 Champion Steel Toolmakers' Forge is like No. 404 on opposite page, the only difference being the Half Hood on this Forge, which makes this a Forge for inside work.

It is especially adapted for Horseshoers, Garages, Toolmakers, Jewelers, Bicycle Repairers, Tempering Tools, Tank Builders, Miners, Prospectors, making repairs on Boilers, Oil Field Work, Steam and Elevated Railroads, or any inside or outside work.

Crank Turns either way to make the blast.

Each Turn of the crank produces **46** complete **Revolutions** of the **Fan Wing.** See pages 2, 3, 4 and 5.

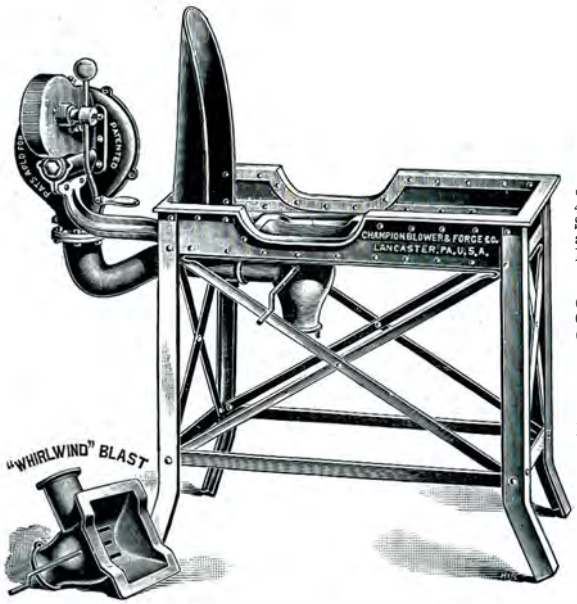
No. 405½ Champion Steel Forge is the same in size of Hearth, Fan, Height, and Gearing as No. 405 shown above. The only difference between the Nos. 405 and 405½ Forges is the Tuyere Iron and the Arm to which the Blower is attached to the No. 405½ Forge, which are the same as shown in cut of No. 407 Forge, page 15.

No.	*Hearth*	*Fan*	*Height*	*Weight*	*Code*	*List Price*
405	**24 x 24″**	**9″**	**30″**	**190 lbs.**	**Fachendon**	**$49.00**
405½	**24 x 24″**	**9″**	**30″**	**240 lbs.**	**Factorage**	**49.00**

THE CHAMPION
STEEL BOILERMAKERS' FORGE
NO. 406

Made with Adjustable Ball Bearings Only

Size of Hearth 30 x 30 Inches **Fan 10 Inches in Diameter**



U. S. Patents covering the No. 400 Champion Steel Blower and Steel Forges.

Patent Numbers

676,322 34,882
676,323 34,883
676,324 34,884
34,880 34,885
34,881 697,629
804,860

Also, Great Britain Patent No. 9,662.

No. 406 Champion Steel Boilermakers' Forge is made of heavy steel with legs riveted to the Hearth and thoroughly braced, making it a stiff and powerful forge large enough in Blast for most any work.

This Forge is supplied with 10-inch Fan, especially suitable and practical for Government Work, Race Horseshoers, Elevated or Steam Railroads, Bridge and Tank Builders, Boiler Works, Garages or any kind of Blacksmith work.

This Forge is now furnished regularly with the No. 400 Champion "Whirlwind" Blast Anti-Clinker Heavy Nest Tuyere Iron without extra cost.

Crank Turns either direction to make the Blast.

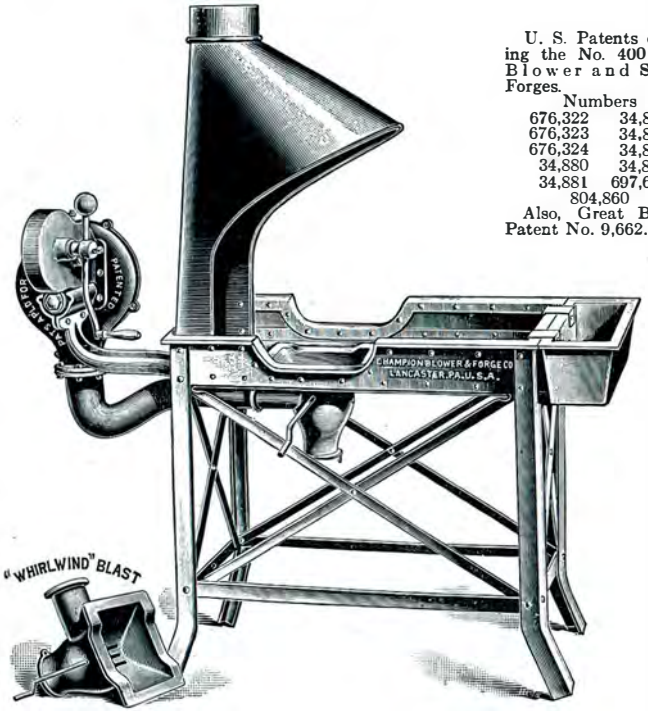
Each Turn of the **Crank** produces **46** complete **Revolutions** of the **Blast Wheel.** See pages 2, 3, 4 and 5.

No.	*Hearth*	*Fan*	*Height*	*Weight*	*Code*	*List Price*
406	**30 x 30"**	**10"**	**30"**	**280 lbs.**	**Fachons**	**$55.00**
With water tank, extra						**5.00**

THE CHAMPION STEEL MACHINISTS' FORGE NO. 407

Made with Adjustable Ball Bearings Only

Size of Hearth 30 x 30 Inches **Fan 10 Inches in Diameter**



U. S. Patents covering the No. 400 Steel Blower and Steel Forges.

Numbers

676,322	34,882
676,323	34,883
676,324	34,884
34,880	34,885
34,881	697,629
804,860	

Also, Great Britain Patent No. 9,662.

No. 407 Champion Steel Machinists' Forge is precisely the same as No. 406 shown on opposite page, the only difference being the Half Hood, which makes this Forge suitable for inside work. It is especially useful for Garages, Machinists, Plumbers, Miners, Marble Workers, Millers, Railroad Repair Shops, Locksmiths, Planters and Manufacturers, who find it a very convenient and economical Forge.

Crank Turns either way to make a Blast. **Each Turn of the Crank** produces **46** complete **Revolutions of the Blast Wheel.** See pages 2, 3, 4 and 5.

No.	*Hearth*	*Fan*	*Height*	*Weight*	*Code*	*List Price*
407	**30 x 30″**	**10″**	**30″**	**285 lbs.**	**Fachplatte**	**$60.00**
With water tank, extra						**5.00**

THE CHAMPION STEEL BLACKSMITHS' FORGES

Made with Adjustable Ball Bearings Only

U. S. Patents covering the No. 400 Steel Blower and Steel Forges.

Numbers

676,322	34,882
676,323	34,883
676,324	34,884
34,880	34,885
34,881	697,629
804,860	

Also, Great Britain Patent No. 9,662.

Nos. 408 and 409 Champion Steel Blacksmiths' Forges represent the "Famous 400" Champion Steel Blower shown on pages 4 and 5, converted into a most complete and practical Blacksmiths' Forge.

These Forges have been universally adopted as the acme of success by all nations as a Blacksmiths' Forge. There construction in Bracing and Bridging of angle steel for stiffness is perfection.

The Hearth is made of heavy steel plate with perpendicular sides 6 inches wide, thus making the Forge 6 inches deep. If so desired can be bricked up to suit the wants of any Blacksmith.

These Forges are furnished regularly with No. 400 Champion "Whirlwind" Blast Anti-Clinker Heavy Nest Tuyere Iron without extra cost.

It has the benefit received from the condensation of the heat to the center of the fire from the circular rotary Whirlwind Blast with no waste of heat going up the chimney. and will soon save enough in the cost of coal alone to pay for the Forge.

These Forges are sold with our guarantee to meet every wish that the Blacksmith can demand from light up to the heaviest work.

Crank Turns either way to make a Blast.

Each Turn of the **Crank** produces **46** complete **Revolutions** of the Blast Wheel. An Blower Speeds should be counted before purchasing, as high speed of the Fan Wing call only make a High Pressure White Heat Blast.

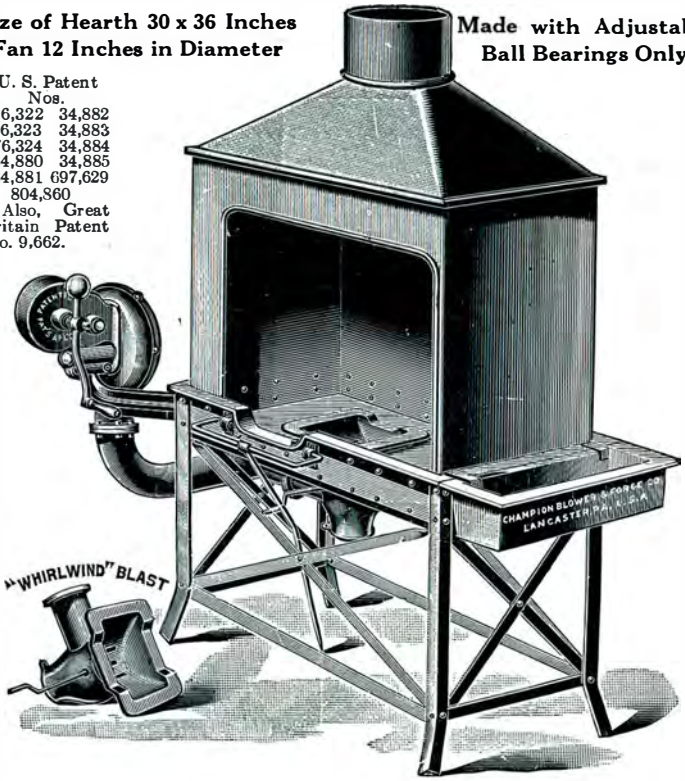
No.	*Hearth*	*Fan*	*Height*	*Weight*	*Code*	*List Price*
408	**30 x 36″**	**12″**	**30″**	**310 lbs.**	**Fachsieb**	**$65.00**
409	**30 x 40″**	**12″**	**30″**	**325 lbs.**	**Fachtofel**	**70.00**
With water tank, extra						**5.00**

THE CHAMPION STEEL HORSESHOERS' FORGE WITH FULL HOOD

Size of Hearth 30 x 36 Inches
Fan 12 Inches in Diameter

Made with Adjustable Ball Bearings Only

U. S. Patent Nos.
676,322 34,882
676,323 34,883
676,324 34,884
34,880 34,885
34,881 697,629
804,860
Also, Great Britain Patent No. 9,662.



No. 408½ Champion Steel Horseshoers' Forge is precisely the same as the No. 408, shown on page 16, excepting this Forge is furnished with full hood, as the illustration shows.

This Forge is very convenient where shops wish to condense their smoke and positively have it all go out the chimney and is very much appreciated in all large American cities.

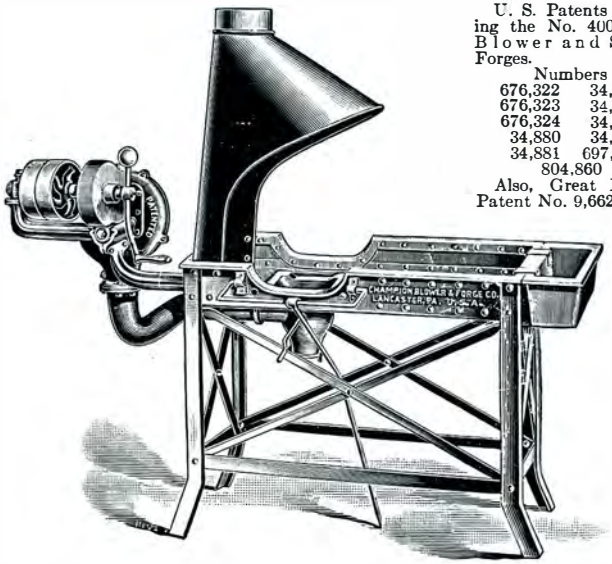
For full description of this Forge, read the description of the No. 408 Forge on page 16.

No.	*Hearth*	*Fan*	*Height*	*Weight*	*Code*	*List Price*
408½	30 x 36"	12"	30"	365 lbs.	Factrix	$80.00
With water tank, extra						5.00

THE CHAMPION STEEL POWER AND HAND BLACKSMITH FORGE

A POWER FORGE THAT REQUIRES NO COUNTERSHAFT
A GREAT FORGE FOR SHOPS RUN BY GASOLINE ENGINES
A POWER FORGE THAT CAN BE RUN BY HAND WHEN POWER IS NOT IN USE

Made with Adjustable Ball Bearings Only



U. S. Patents covering the No. 400 Steel Blower and Steel Forges.

Numbers

676,322	34,882
676,323	34,883
676,324	34,884
34,880	34,885
34,881	697,629
	804,860

Also, Great Britain Patent No. 9,662.

No. 408½ Champion Steel Power and Hand Blacksmith Forge represents a convenient and complete Forge for large fires for Blacksmiths, Garages, and all general Blacksmithing to be run by either power or hand, one or the other always being ready.

This Forge represents in its entire make-up and construction, the No. 408 Forge shown on page 16 with the exception that this Forge is fitted with power or hand drive, making it very convenient in shops where gasoline engines or single motor power is used. The fact that the Blower has its own tight and loose pulley countershaft—therefore belted direct from the line shaft—makes it possible to be used any time.

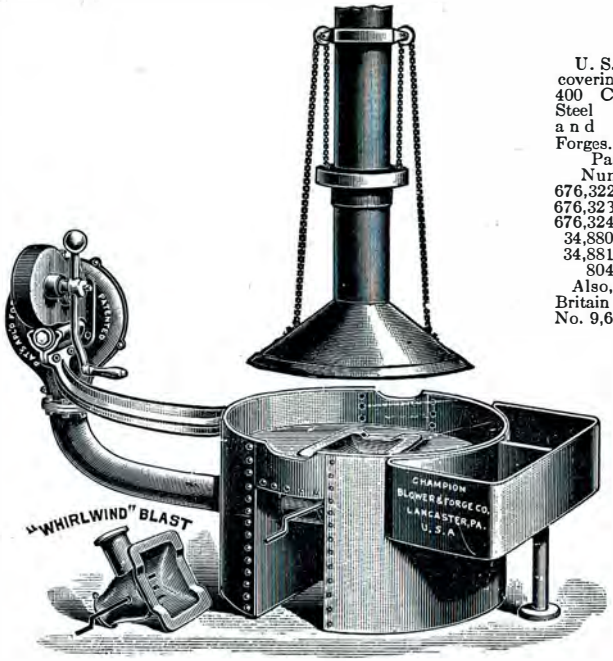
This Forge is furnished same as the No. 408 Forge with the "Whirlwind" Blast Tuyere Iron, as well as the High Speed Spiral Gearing shown on pages 2 and 3.

No.	*Hearth*	*Fan*	*Height*	*Weight*	*Code*	*List Price*
408½	30 x 36″	12″	30″	315 lbs.	Faccenda	$76.50
408½A	30 x 36″	14″	30″	320 lbs.	Faccia	84.50
408½B	30 x 36″	16″	30″	330 lbs.	Faceto	87.50
With water tank, extra						5.00

THE CHAMPION LARGE ROUND STEEL FORGE

Made with Adjustable Ball Bearings Only

Size of Hearth 36 Inches in Diameter **Fan 12 Inches in Diameter**



U. S. Patents covering the No. 400 Champion Steel Blower and Steel Forges.

Patent Numbers

676,322 34,882
676,323 34,883
676,324 34,884
34,880 34,885
34,881 697,629
804,860

Also, Great Britain Patent No. 9,662.

No. 410 Champion Steel Forge has round Hearth 36 inches in diameter constructed from Heavy Steel Plate with telescopic canopy hood which is not found on any other hand forge.

It will be appreciated in Railroad Shops, Machine Shops, etc., as the Hood can be raised or lowered at the pleasure of the Operator, the Hood being balanced with a Cast Iron Ring.

This Forge represents in Blast and machinery construction the "Famous 400" Blower shown on pages 4 and 5 fully equipped with Whirlwind Blast Heavy Nest Tuyere Iron.

The High Speed Spiral Gearing is shown on pages 2 and 3.

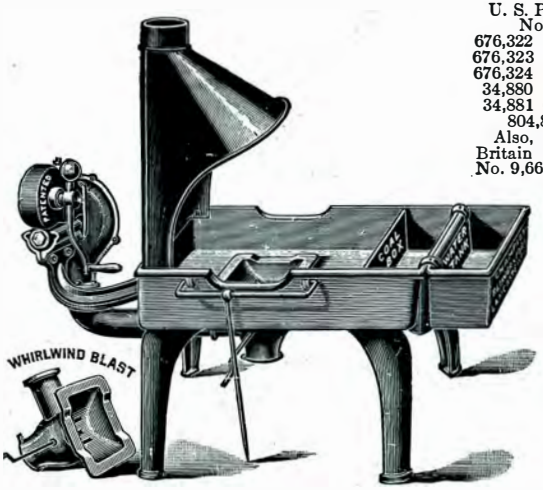
This Forge is sold with our guarantee to meet all conditions in perfection of blast and construction.

No.	*Hearth*	*Fan*	*Height*	*Weight*	*Code*	*List Price*
410	36" Dia.	12"	30"	550 lbs.	Fackel	$100.00

THE CHAMPION
LARGE COMBINATION FORGES

Made with Adjustable Ball Bearings Only

U. S. Patent Nos.
676,322 34,882
676,323 34,883
676,324 34,884
34,880 34,885
34,881 697,629
804,860
Also, Great Britain Patent No. 9,662.



No. 430.

The Champion Large Combination Blacksmith Forges represent the largest Blacksmith Forges ever built. We have a demand for a Forge of this magnitude in Railroad Shops, Plow Works, Heavy Wagon Works, and Blacksmith Shops making extra heavy work a specialty The Hearths of these Forges are 7 inches deep, built of cast iron and very heavy, making them a Forge that can be built up with fire brick, and giving every advantage that can possibly be had with a Forge built out of stone or brick. The Blower attached to these Forges is the Famous 400 Champion "Patented" High-Speed Spiral-Geared Blower, illustrated on pages 2, 3, 4 and 5.

Nos. 430, 431 and 432 Champion Large Combination Forges are supplied with the No. 400 Champion **"Whirlwind"** Blast Anti-Clinker Heavy Nest Tuyere Iron and Water Tank **without extra cost.**

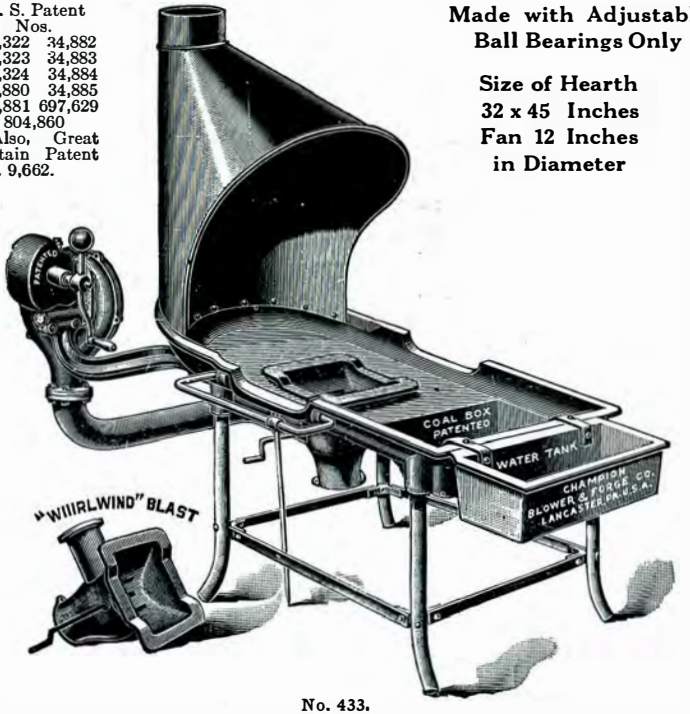
No.	*Hearth*	*Fan*	*Height*	*Weight*	*Code*	*List Price*
430	**38 x 52″**	**12″**	**26″**	**595 lbs.**	**Faltamos**	**$80.00**
431	**39 x 63″**	**14″**	**26″**	**670 lbs.**	**Faltar**	**90.00**
432	**39 x 63″**	**16″**	**26″**	**690 lbs.**	**Falterpoel**	**93.00**

THE CHAMPION CAST IRON HEARTH BLACKSMITH FORGE

U. S. Patent Nos.
676,322 34,882
676,323 34,883
676,324 34,884
34,880 34,885
34,881 697,629
804,860
Also, Great Britain Patent No. 9,662.

Made with Adjustable Ball Bearings Only

Size of Hearth 32 x 45 Inches Fan 12 Inches in Diameter



No. 433.

No. 433 Champion Cast Iron Hearth Blacksmith Forge carries with it all the improvements and advantages that can be had. This Hearth is 32 x 45 inches and is supplied with a Sloped Bottom Coal Box which is entirely out of the way, as it is beneath the level of the bottom of the Hearth, thus keeping the coal in any degree of dampness that the operator desires.

The Blower used is the Famous 400 Champion "Patented" High-Speed Spiral Geared Blower shown on pages 2, 3, 4 and 5.

The Forge is supplied with the No. 400 Champion "Whirlwind" Blast Anti-Clinker Heavy Nest Tuyere Iron.

The Blast of this Forge is sufficient for any Blacksmith. We recommend it for the heaviest as well as the lightest work and for use in Blacksmith shops, Garages, Machine shops, etc., and any special work.

Crank Turns either way to make a Blast.

Each Turn of the **Crank** produces **46** complete **Revolutions** of the Blast Wheel, making a High Pressure White Heat Blast.

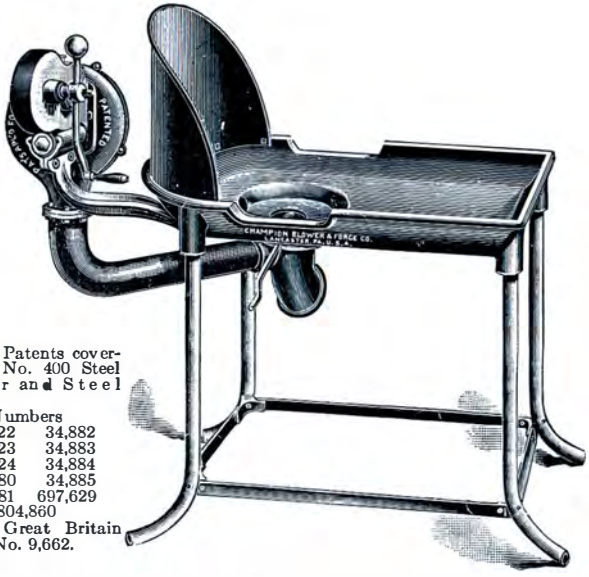
No.	*Hearth*	*Fan*	*Weight*	*Code*	*List Price*
433	**32 x 45″**	**12″**	**410 lbs.**	**Fabagella**	**$55.00**
With water tank, extra					5.00

THE CHAMPION BOILERMAKERS' FORGE

WITH CAST IRON HEARTH

Size of Hearth 23 x 35 Inches **Fan 10 Inches in Diameter**

Made with Adjustable Ball Bearings Only



U. S. Patents covering the No. 400 Steel Blower and Steel Forges.

Numbers

676,322	34,882
676,323	34,883
676,324	34,884
34,880	34,885
34,881	697,629
804,860	

Also, Great Britain Patent No. 9,662.

No. 434 Champion Boilermakers' Forge, with cast iron hearth, is supplied with the No. 400 Champion "Patented" high-speed Spiral Gearing Blower as shown on pages 2, 3, 4 and 5. Size of hearth 23 x 35 inches, making it a large and heavy Forge for Boilermakers, Bridge Builders, Ship Builders, Railroad Shops, Tank Builders, Garages, or for any purpose where a large Forge of this size is desired. It is guaranteed to supply sufficient blast for welding 4-inch iron in ten minutes with great ease.

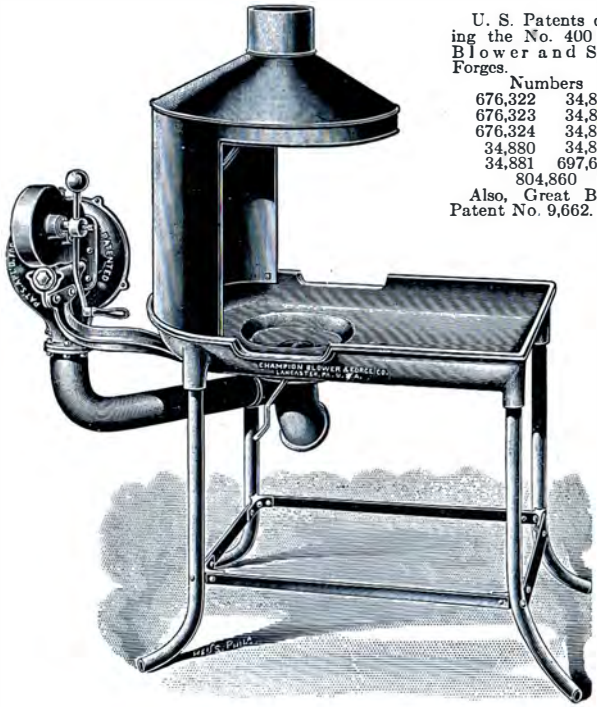
No.	*Hearth*	*Fan*	*Height*	*Weight*	*Code*	*List Price*
434	**23 x 35"**	**10"**	**30"**	**235 lbs.**	**Fabalibus**	**$40.00**

THE CHAMPION MACHINISTS' FORGE

WITH CAST IRON HEARTH

Size of Hearth 23 x 35 Inches **Fan 10 Inches in Diameter**

Made with Adjustable Ball Bearings Only



U. S. Patents covering the No. 400 Steel Blower and Steel Forges.

Numbers	
676,322	34,882
676,323	34,883
676,324	34,884
34,880	34,885
34,881	697,629
804,860	

Also, Great Britain Patent No. 9,662.

No. 435 Champion Machinists' Forge with cast iron hearth is the same as the No. 434 Forge described on opposite page with Half Hood. This Forge is especially adapted for Machinists, Plumbers, Miners, Marble Workers, Millers, Railroad Repair Shops, Locksmiths, Planters and Manufacturers who will find it a very convenient and economical Forge. For further particulars refer to pages 2, 3, 4 and 5.

No. 436 Forge has Full Hood.

No.	*Hearth*	*Fan*	*Height*	*Weight*	*Code*	*List Price*
435	23 x 35″	10″	30″	250 lbs.	Fabaries	$44.00
436	23 x 35″	10″	30″	265 lbs.	Fabulisant	47.00

THE CHAMPION RIVET FORGE

WITH CAST IRON HEARTH

Made with Adjustable Ball Bearings Only

Size of Hearth 22 Inches in Diameter **Fan 9 Inches in Diameter**

U. S. Patents covering the No. 400 Steel Blower and Steel Forges.

Numbers

676,322	34,882
676,323	34,883
676,324	34,884
34,880	34,885
34,881	697,629
804,860	

Also, Great Britain Patent No. 9,662.

No. 437 Champion Rivet Forge has Cast Iron Hearth and is supplied with the 400 Champion "Patented" High Speed Spiral Geared Blower, shown on pages 2 and 3.

It is a very desirable Forge for Jewelers, Bicycle Repairers, Tempering Tools, Tank Builders, Miners, Prospectors, Boilermakers, Bridge Builders, Elevated Railroads, etc.

Crank Turns either way to make a Blast.

Each Turn of the **Crank** produces **46** complete **Revolutions** of the **Fan Wheel.** All Blower Speeds should be counted before purchasing, as high speed of the Fan Wing can only make a High Pressure White Heat Blast.

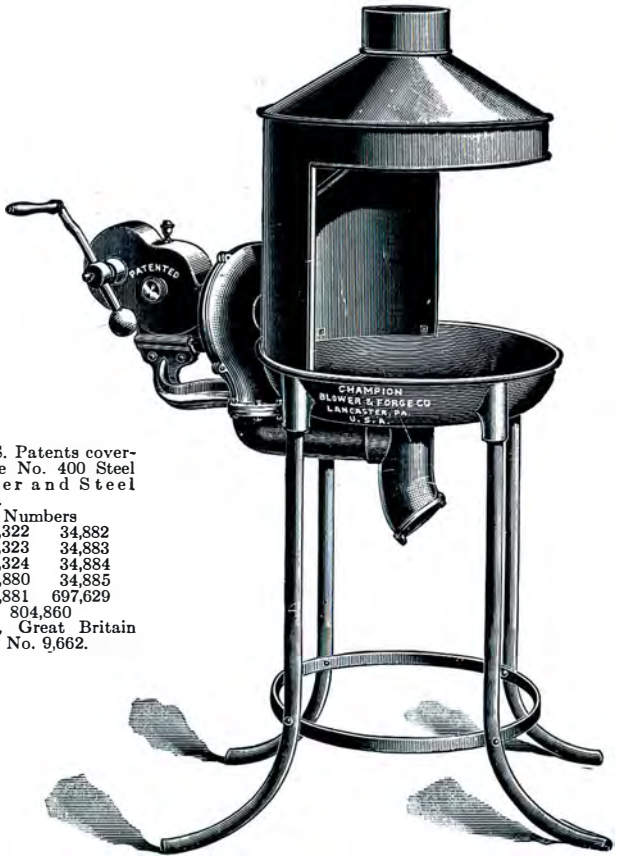
No.	*Hearth*	*Fan*	*Height*	*Weight*	*Code*	*List Price*
437	**22" Dia.**	**9"**	**33"**	**170 lbs.**	**Fabbrile**	**$33.00**

THE CHAMPION TOOLMAKERS' FORGE

WITH CAST IRON HEARTH

Made with Adjustable Ball Bearings Only

Size of Hearth 22 Inches in Diameter Fan 9 Inches in Diameter



U. S. Patents covering the No. 400 Steel Blower and Steel Forges.

Numbers

676,322	34,882
676,323	34,883
676,324	34,884
34,880	34,885
34,881	697,629
804,860	

Also, Great Britain Patent No. 9,662.

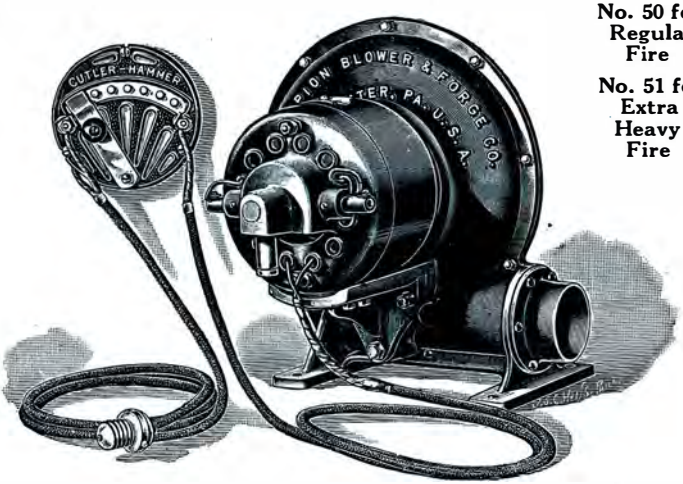
No. 438 Champion Toolmakers' Forge is the same as the No. 437 Forge shown on the opposite page with the exception that it has Half Hood.

No.	*Hearth*	*Fan*	*Height*	*Weight*	*Code*	*List Price*
438	22″	9″	33″	180 lbs.	Fabelhaft	$36.00

THE CHAMPION ONE-FIRE VARIABLE SPEED ELECTRIC STEEL PRESSURE BLOWERS
THE BLOWER WITH THE BIG MOTOR

No. 50 for Regular Fire

No. 51 for Extra Heavy Fire



The Champion One-Fire Variable Speed Electric Blower represents the Champion Steel Pressure Blower Fan Case manufactured by us for 45 years for large capacity cupola melting blast.

The motors attached to these blowers in power possible are 40 per cent. above the actual requirements, and will run the blast wheel of these blowers at the highest speed and pressure on continuous operation without a stop and without heating, producing the highest pressure and most powerful blast for a rotary blower, and are the finished results of over 12 years of practical electrical blower experience, gained from over 200,000 Champion Electric Blowers in use throughout the world.

Champion Variable Speed Electric Blowers are designed to meet the demand for all heating purposes from the smallest up to 4-inch square material and are used extensively for blowing furnaces, organs and machinery requiring an automatic blast producing blower. The variations of the blast are governed by the six different changes in speeds as selected or desired by the operator by the movement of the small lever on the detached rheostat.

Champion Variable Speed Motors are built with hammered steel shaft, phosphor bronze bearings, self-aligning and self-oiling bearings, commutator of hard drawn copper with 24 bars, large flat brushes staggered on the commutator so as to insure the longest possible life to the commutator and silk-covered wire of the best insulation.

Champion Variable Speed Blowers are furnished with Universal motor wound for both alternating and direct current, either 110 or 220 volts, with attachment cord and plug to fit any light socket; therefore requiring no electrical expense to connect blower to the current.

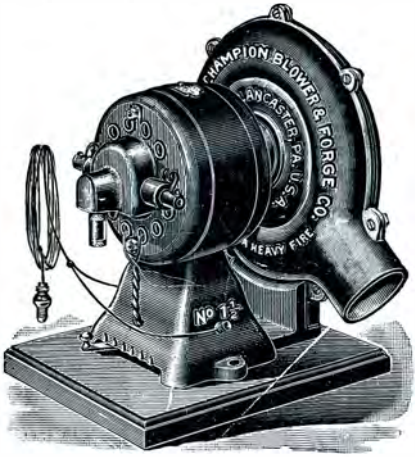
Before ordering ask your electric current plant for Voltage only.

	No. 50 *For Regular Fire* *Variable Speed Universal Motor*	*No. 51* *For Extra Heavy Fire*
LIST PRICE		
Either 110V or 220V	**$40.00**	**$60.00**
Weight	**70 lbs.**	**85 lbs.**
R.P.M.	**2100**	**2500**
Outlet	**3″**	**3″**
Height	**15″**	**15″**
Code	**Faces**	**Faceor**

THE CHAMPION ONE-FIRE VARIABLE SPEED ELECTRIC BLACKSMITH BLOWER

No. 1. For Regular Blacksmith Fire

No. 1½ for Extra Heavy Fire



Nos. 1 and No. 1½ Champion One-Fire Variable Speed Electric Blacksmith Blowers are equipped with the same motor as found on the Variable Speed Electric Steel Pressure Blowers shown on page 26, with six variable speeds on rheostat placed conveniently underneath the base and attachment cord and plug in one unit as illustrated above, and is particularly serviceable where compactness is a necessity.

These blowers are very convenient to set up. Its rheostat is attached direct to the blower where it is easy to reach to change the blast. For full information concerning the construction of motor, see page 26.

Before ordering ask your electric current plant if your current is direct or alternating. If direct current get the voltage only. If alternating current, get the cycles, phase and voltage.

	No. 1 *For Regular Fire*	*No. 1½* *For Extra Heavy Fire*
List price	$40.00	$60.00
Weight	55 lbs.	80 lbs.
R.P.M.	2650	2600
Outlet	3″	3″
Height	12″	14″
Code	Factorship	Facchino

THE CHAMPION DIRECT CONNECTED ELECTRIC BLOWER

No. 20. For One to Two Fires

No. 20 Champion Direct Connected Constant Speed Electric Blower is highly recommended to those looking for a constant speed blower for one to two fires.

The motor is our own design, and built with at least 40% more units of power than are called on for making blast for two fires. The shaft and bearings are long and heavy. The material and workmanship is of the highest grade, making it a durable machine.

The Fan Case is our steel pressure design, giving high pressure and sufficient blast to operate two fires satisfactorily.

Each forge must have a blast gate and the blower will work equally as well for one or two fires, but the best results are obtained when the blower is set close to the fires, with the piping as short as possible.

This Blower is supplied with a Knife Switch for starting and stopping the motor.

Directions for Ordering the No. 20 Constant Speed Electric Blower

1st—Get information from the plant that generates the current you use.
2d—Find if the current is direct or alternating.
3d—If direct, it is necessary that you find the voltage only.
4th—If alternating, you must find cycles, phase and voltage.
5th—60 cycles furnished regularly.
6th—Both currents can be furnished regularly for either 110 or 220 volts.
7th—Other cycles or voltages are special and require correspondence.

No.	*Height*	*Outlet*	*R.P.M.*	*Weight*	*Code*	*List Price*
20	**15″**	**3½″**	**3500**	**80 lbs.**	**Facar**	**$60.00**

THE CHAMPION DIRECT CONNECTED ELECTRIC BLOWER

No. 2. For One to Four Fires

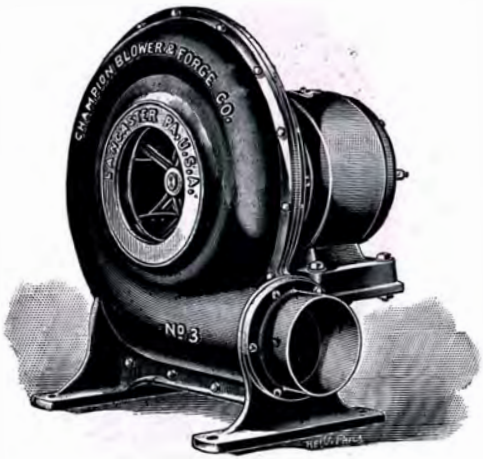
No. 2 Champion Direct Connected Constant Speed Electric Blower is sold with our recommendation to all users looking for a constant speed blower for one to four fires. The motor is of our own design, of a high speed type with at least forty per cent. more units of power than are called on for making blast for four fires. The shaft and bearings are equally large in proportion, in connection with the highest grade materials and best workmanship, making the outfit as durable as it can be manufactured. The Blower is of the Steel Pressure pattern, giving the benefit of high pressure. We have no hesitancy in guaranteeing this Blower to have sufficient blast for four fires; however, with the use of blast gates (one of which must be used at each fire) the blast can readily be brought down for one or two fires. The extra size motor also makes this Blower a great saver of electricity. The best results are obtained when the Blower is close to the fire and elbows or especially short turns are avoided. This Blower is furnished complete with knife switch where required. Directions for ordering the No. 2 Constant Speed Electric Blower:

1st—Get information from the plant that generates the current you use.
2d—Find if the current is direct or alternating.
3d—If direct it is necessary that you find the voltage only.
4th—If alternating, you must find cycles, phase and voltage.
5th—60 cycles furnished regularly.
6th—Both currents can be furnished regularly for either 110 or 220 volts.
7th—Other cycles and voltages are special and require correspondence.

No.	*Height*	*Outlet*	*R.P.M.*	*Weight*	*Code*	*List Price*
2	15″	3-5/8″	3500	110 lbs.	Factat	$85.00

THE CHAMPION DIRECT CONNECTED ELECTRIC BLOWER

No. 3. For One to Six Fires



No. 3 Champion Direct Connected Constant Speed Electric Blower is one recommended to those looking for a constant speed blower for one to six fires.

The motor is our own design and built with at least 40 per cent. more units of power than are called on for making blast for six fires. The shaft and bearings are long and heavy. The material and workmanship are of the highest grade, making it a durable machine.

The Fan Case is our steel pressure design, giving high pressure and sufficient blast to operate six fires satisfactorily.

Each forge must have a blast gate and the blower will work equally well for one or six fires, but the best results are obtained when the blower is set close to the fires with the piping as short as possible.

This Blower is supplied with a Knife Switch for starting and stopping the motor.

Directions for Ordering the No. 3 Constant Speed Electric Blower

1st—Get information from the plant that generates the current you use.
2d—Find if the current is direct or alternating.
3d—If direct, it is necessary that you find the voltage only.
4th—If alternating, you must find cycles, phase and voltage.
5th—60 cycles furnished regularly.
6th—Both currents can be furnished regularly for either 110 or 220 volts.
7th—Other cycles or voltages are special and require correspondence.

No.	*Height*	*Outlet*	*R.P.M.*	*Weight*	*Code*	*List Price*
3	**20″**	**4-7/8″**	**3500**	**190 lbs.**	**Fact**	**$135.00**

THE CHAMPION DIRECT CONNECTED ELECTRIC BLOWER

No. 4. For One to Nine Fires

No. 4 Champion Direct Connected Constant Speed Electric Blower is furnished with a motor, specially designed for this Company, and has at least forty per cent. more power capacity than is customary in usual goods of this kind. The motor shafts and bearings are also of equally large dimensions. The increased size of the motor not only does its work with greater ease but saves at least ten per cent. in cost of electric current. The best results are obtained when the Blower is close to the fire and elbows or especially short turns are avoided. This Electric Blower is furnished complete with knife switch where required.

Directions for Ordering the No. 4 Constant Speed Electric Blower:

1st—Get information from the plant that generates the current you use.
2d—Find if the current is direct or alternating.
3d—If direct it is necessary that you find the voltage only.
4th—If alternating, you must find cycles, phase and voltage.
5th—60 cycles furnished regularly.
6th—Both currents can be furnished regularly for either 110 or 220 volts.
7th—Other cycles and voltages are special and require correspondence.

No.	*Height*	*Outlet*	*R.P.M.*	*Weight*	*Code*	*List Price*
4	**25¾″**	**7-7/8″**	**1750**	**285 lbs.**	**Factionary**	**$180.00**

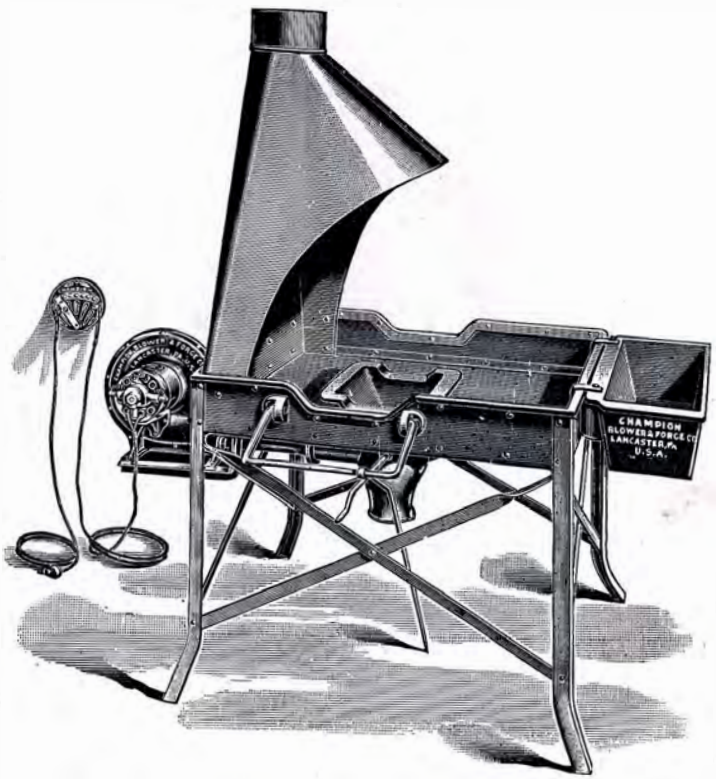
CHAMPION ELECTRIC STEEL RIVET FORGE
NO. 459

No. 459 Champion Electric Steel Rivet Forge is built for the Rivet and Shipbuilding Trade. The Motor is carefully protected from the weather, enabling this Forge to remain on shipways in the open without the motor or starting rheostat sustaining any damage. The Blower is directly connected to the Tuyere Iron and is equipped with a Six Speed Variable Speed Regulator, manipulated by handle attachment as shown in a convenient place. The Hearth is exceptionally deep, permitting heating a large quantity of rivets at one time, and the entire Forge is built large and strong to withstand the hardest kind of usage such as a rivet and shipbuilding forge sustains.

In ordering give voltage only.

No.	*Hearth*	*Height*	*Weight*	*Code*	*List Price*
459	**18″**	**30″**	**160 lbs.**	**Frost**	**$67.50**

CHAMPION ELECTRIC STEEL FORGE
NO. 440



The No. 440 Champion Electric Driven Steel Forge represents a large, steel plate forge, with perpendicular sides 6 inches high, similar to that used on the No. 408 forge, page 16, with the Champion No. 50 one-fire variable speed electric blower as shown on page 26, making it a very complete and up to date electrical outfit for those desiring a spacious, high-grade steel-hearth forge; materially reducing the cost of a built-up brick hearth, to which an electric blower would have to be attached.

In ordering give voltage only.

No.	*Hearth*	*Height*	*Weight*	*Code*	*List Price*
440	**30 x 36″**	**30″**	**310 lbs.**	**Facture**	**$85.00**
With water tank, extra					**5.00**

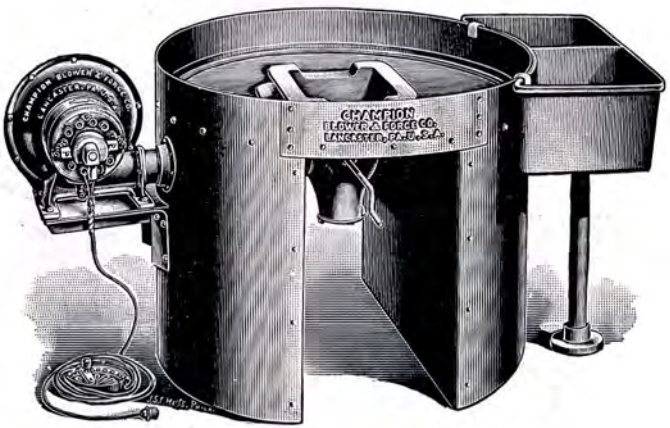
CHAMPION ELECTRIC STEEL FORGE WITH FULL HOOD NO. 448

No. 448 Champion Electric Blacksmith Steel Forge represents the No. 440 Electric Driven Forge shown on page 33 with a full hood, which is convenient where shops wish to concentrate the smoke of the fire and have it go out the chimney and for use particularly in combustible places, especially in large cities.

In ordering give voltage only.

No.	*Hearth*	*Height*	*Weight*	*Code*	*List Price*
448	**30 x 36″**	**30″**	**370 lbs.**	**Famuter**	**$100.00**
With water tank, extra					**5.00**

CHAMPION ELECTRIC ROUND STEEL FORGES

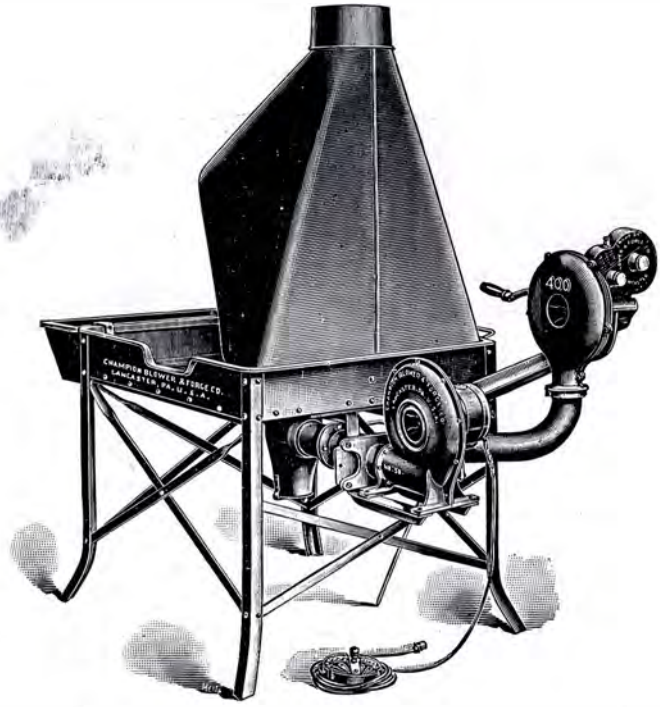


The Champion Electric Round Steel Forges are built of heavy steel plate with structural iron, attached to which is the No. 50 One-Fire Variable Speed Electric Blacksmith Blower, shown on page 26, and recommended for Railway Shops or any place where extra heavy work is desired. These Forges are all equipped with the "Whirlwind" Blast Anti-Clinker Heavy Nest Tuyere Iron, and are guaranteed to do the heaviest class of work expected.

In ordering give voltage only.

No.	*Hearth*	*Height*	*Weight*	*Code*	*List Price*
446	36″	30″	565 lbs.	Gamo	$140.00
447	45″	30″	675 lbs.	Gad	167.50
With water tank, extra					15.00

CHAMPION COMBINATION HAND AND ELECTRIC STEEL FORGE NO. 445

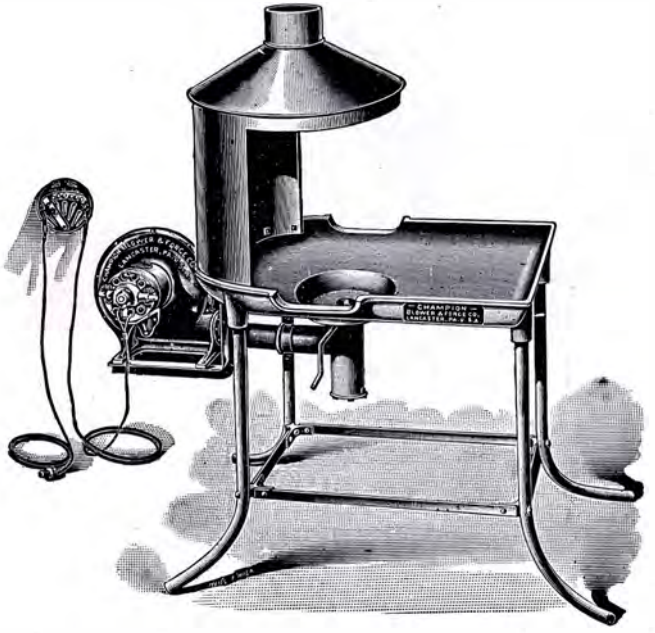


No. 445 Champion Combination Hand and Electric Steel Forge is in size the same as the No. 440 Electric Driven Forge, page 33, in combination with the No. 50 Champion One Fire Variable Speed Electric Blower, shown and described on page 26, and the Famous No. 400 Champion Steel Blower, making a very complete and practical outfit with combination electric and hand power Blower. This combination is particularly suitable in case the electric power is for some reason not at hand, when the Forge need not remain idle, but can be operated by means of the hand Blower, the blast being controlled by a system of Blast Gates.

In ordering give voltage only.

No.	*Hearth*	*Height*	*Weight*	*Code*	*List Price*
445	30 x 36″	30″	400 lbs.	Favoritism	$110.00
With water tank, extra.					5.00

CHAMPION ELECTRIC MACHINISTS' CAST IRON FORGE NO. 443

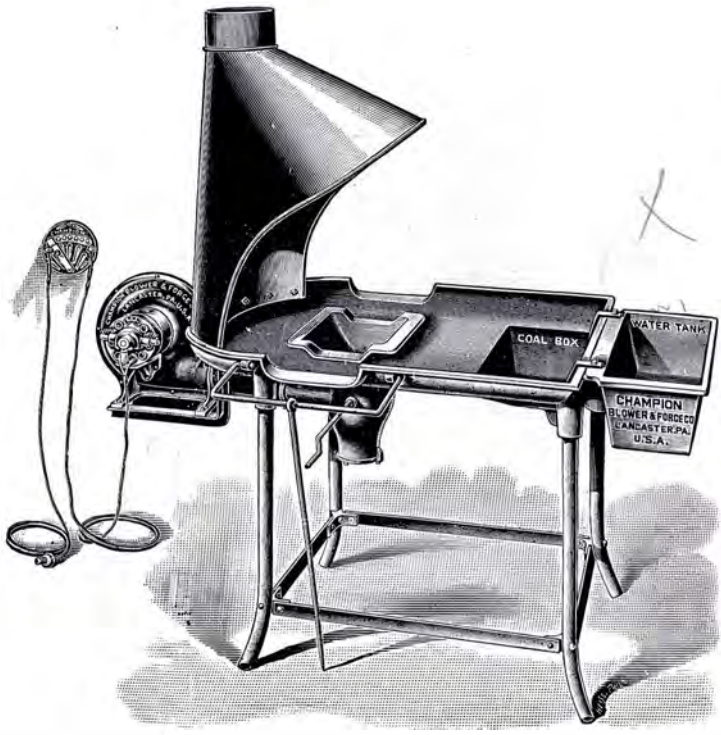


No. 443 Champion Electric Driven Machinists' Cast Iron Forge represents a medium size Hearth Forge with Ball Tuyere Iron, with the No. 50 Champion **One-Fire Variable Speed** Electric Blower, shown and described on page 26, which makes a particularly good forge for garage use in heating and tempering.

In ordering give voltage only.

No.	*Hearth*	*Height*	*Weight*	*Code*	*List Price*
443	**23 x 35″**	**30″**	**250 lbs.**	**Fusames**	**$67.50**

CHAMPION ELECTRIC CAST IRON FORGE
NO. 441

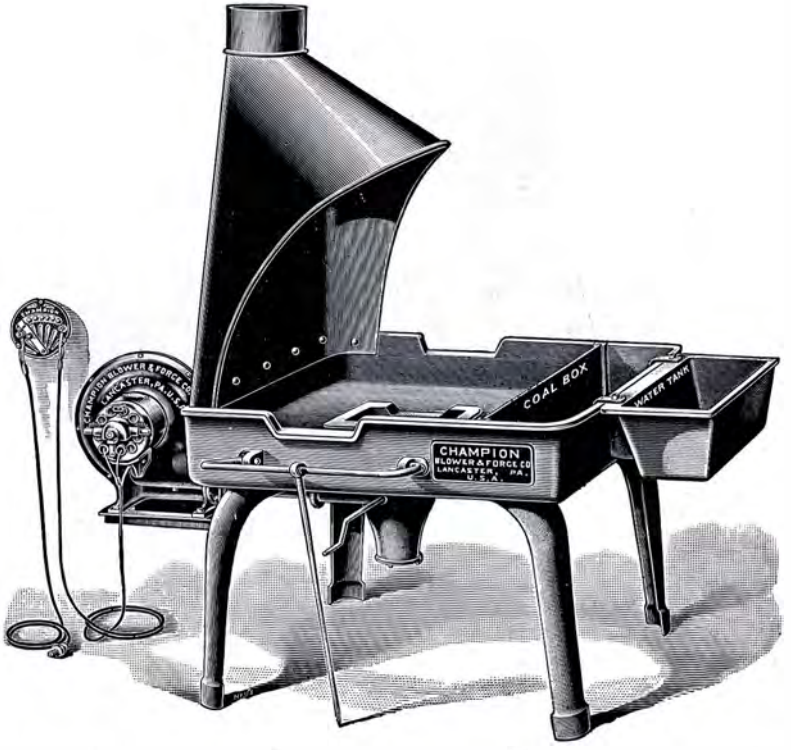


No. 441 Champion Electric Driven Cast Iron Forge represents a large hearth Forge with "Whirlwind" Blast Anti-Clinker Heavy Nest Tuyere Iron and Champion Patented Sloped Bottom Coal Box, with the No. 50 Champion **One-Fire Variable Speed** Electric Blower, as shown and described on page 26 attached, as shown above, making a very complete and practical Electric Blacksmith Outfit for those desiring a roomy heavy cast iron forge.

In ordering give voltage only.

No.	*Hearth*	*Height*	*Weight*	*Code*	*List Price*
441	**32 x 45"**	**30"**	**400 lbs.**	**Factavim**	**$80.00**
With water tank, extra					**5.00**

CHAMPION ELECTRIC
EXTRA HEAVY CAST IRON FORGE
NO. 442



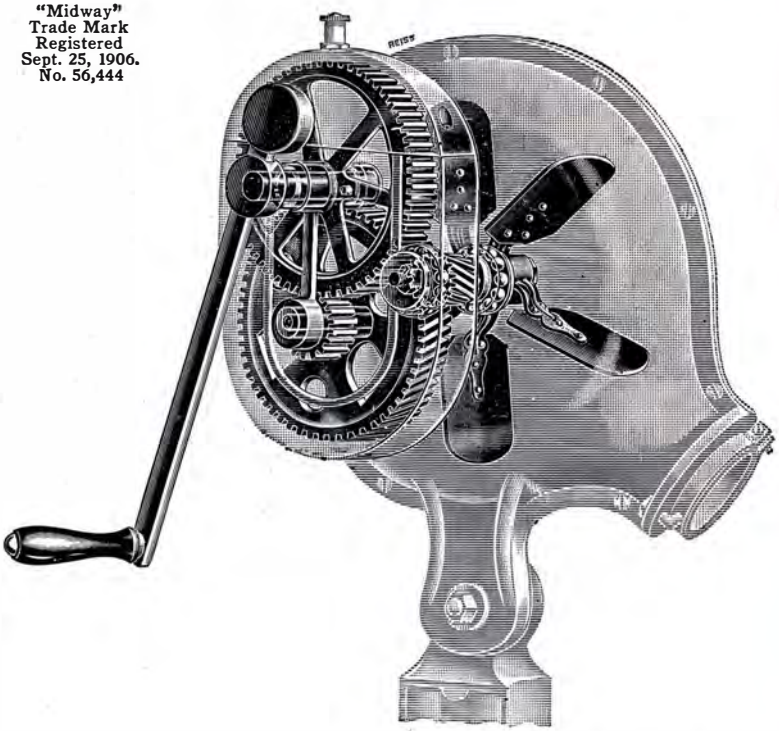
No. 442 Champion Electric-Driven Extra Heavy Cast Iron Forge is the largest in blast, size and weight of any Electric Blacksmith Forge built. The size of the hearth is 38 x 42 x 7 inches deep, making it a Forge equal in firmness and size to any stationary brick forge that can be built. This Forge is supplied with the "Whirlwind" Blast Anti-Clinker Heavy Nest Tuyere Iron and coal box, with the No. 51 Champion Variable Speed Electric Blower attached, shown and described on page 26, and in every respect built for extra heavy work. We recommend it for any railroad shop or any place where extra heavy work is expected.

In ordering give voltage only.

No.	*Hearth*	*Height*	*Weight*	*Code*	*List Price*
442	**38 x 42 x 7"**	**26"**	**540 lbs.**	**Fustolina**	**$115.00**
With water tank, extra					**5.00**

THE NO. 70 CHAMPION "MIDWAY" SPIRAL GEARING

"Midway"
Trade Mark
Registered
Sept. 25, 1906.
No. 56,444



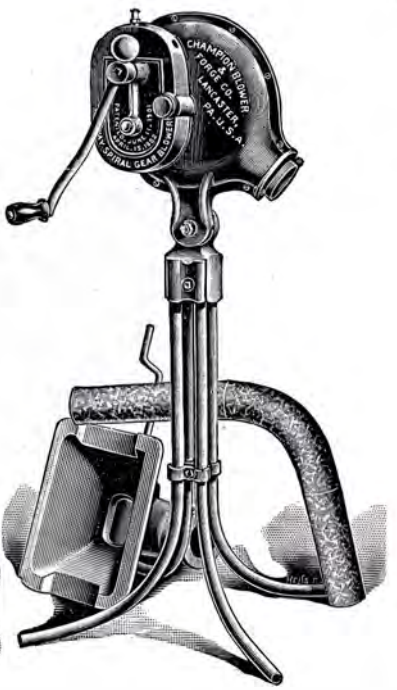
The No. 70 Champion "Midway" Spiral Gearing shown above has been used by us for many years in thousands of Blowers and Forges, giving excellent satisfaction. It will be noted that the high speed gear and pinion are helical in design, the high speed pinion shaft operating on ball bearings equipped with hardened tool steel cups and cones, thereby insuring long life and easy and efficient operation. All other bearings in this Blower are equipped with bushings, insuring, if necessary, replacement and practically unlimited service.

The No. 70 Champion "Midway" Spiral Gearing is guaranteed to be of the best construction possible and stands second only to the No. 400 Champion "Patented" High Speed Spiral Gearing as shown on pages 2 and 3.

The Crank turns either way to make the blast.

THE CHAMPION "MIDWAY" SPIRAL-GEARED BLOWERS

No. 70.



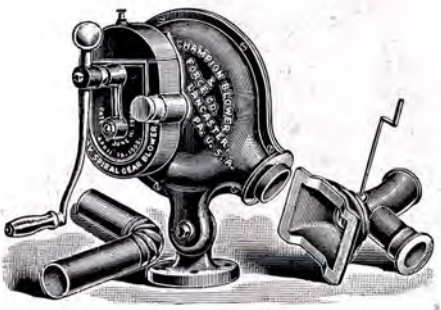
No. 70L.

The Champion "Midway" Spiral-Geared Blowers are built with Helical Spiral Gearing, a well-built cut gear Blower that can be sold for less money than the Famous 400 Champion Steel Blower, shown on pages 2, 3, 4 and 5, which represents the most perfect, durable and highest speed Spiral-Geared Blower that money and skill can manufacture. "Midway" Blowers have Ball Bearings on high speed shaft as illustrated on opposite page. Other bearings on "Midway" Blowers are bushed, which is more than other makers do on their highest grade product.

The Champion "Midway" Spiral Gearing is simple in construction and without small gears or pinions; and therefore is durable and practical. We recommend this Blower as a strong and well built Blower with a good blast and is sold with our guarantee. The gearing runs in oil in a dust-proof casing, the crank turns in either direction to make the blast. As illustration shows Blower is supplied with Heavy Nest Ball Tuyere Iron weighing 50 pounds, and pipe complete.

No.	*Fan*	*Weight*	*Code*	*List Price*
70	**12″**	**170 lbs.**	**Fabianos**	**$30.00**
70L	**12″**	**135 lbs.**	**Fabinust**	**30.00**

THE CHAMPION "MIDWAY" SPIRAL GEARED BENCH BLOWER

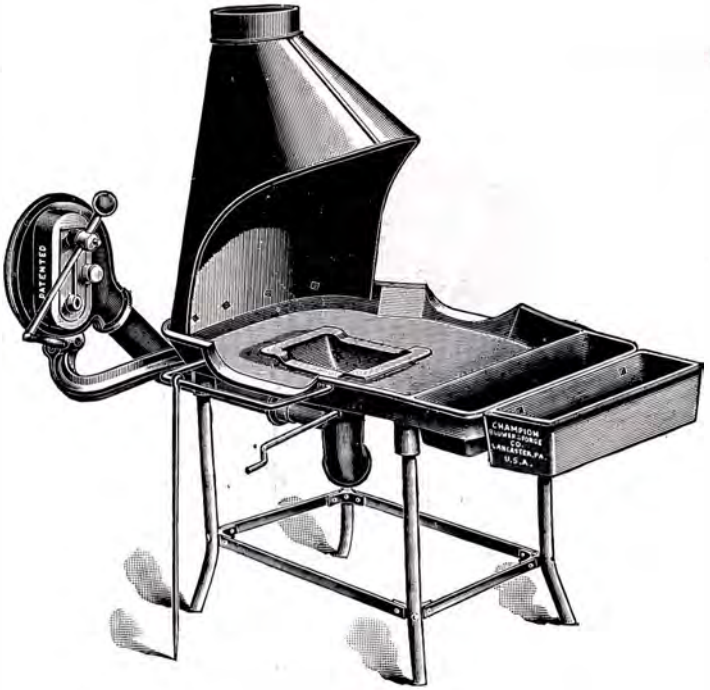


No. 70½.

No. 70½ Champion "Midway" Spiral Geared Bench Blower is built in detail of construction the same as our No. 70 "Midway" Blower shown on pages 40 and 41, the only difference is, that the Bench Blower is fitted with a short pedestal so as to be mounted on a bracket or attached to a bench which is often very convenient in many places where room is a consideration. This Blower is furnished complete with piping and tuyere iron ready to set up same as our No. 70 Blower.

No.	*Fan*	*Weight*	*Code*	*List Price*
70½	**12"**	**140 lbs.**	**Fabbro**	**$28.00**

THE CHAMPION "MIDWAY" SPIRAL-GEARED BLACKSMITH FORGE



The Champion "Midway" Spiral-Geared Blacksmith Forge has cast iron hearth with Coal Box and **Heavy Nest Tuyere Iron** and direct drive "Midway" Spiral Gearing. We have built this Forge to place before the Blacksmith world a well-built direct-drive Blacksmith Forge which produces a good strong blast, and a Forge that can be sold for less money than the "Famous" 400 Champion Steel or Cast Iron Forges. The gearing used for producing the blast in this Forge is the Champion "Midway" or Cross Spiral Gearing shown on pages 40 and 41. It is simple in construction and without small gears or pinions. We recommend this Forge as a strong, durable, cast iron Forge. The gearing is enclosed in a dust-proof casing, and the crank turns in either direction to make the blast.

No.	*Hearth*	*Fan*	*Height*	*Weight*	*Code*	*List Price*
71	**32 x 45″**	**12″**	**30″**	**390 lbs.**	**Fabelsage**	**$50.00**
With water tank, extra						**5.00**

THE CHAMPION "MIDWAY" SPIRAL-GEARED BOILERMAKERS' FORGE

WITH CAST IRON HEARTH

Size of Hearth 23 x 35 Inches **Fan 10 Inches in Diameter**

No. 72. With Shield.

No. 72 Champion "Midway" or Cross Spiral-Geared Forge, has direct drive gearing precisely the same as the No. 70 Blower on pages 40 and 41. It is a well built, strong and substantial Forge, where a less expensive Forge is required than the Forges in the Famous 400 line. It is suitable for Boilermakers, Jewelers, Bridge Builders, Railroad Contractors, Miners, Tank Builders, etc.

No.	*Hearth*	*Fan*	*Height*	*Weight*	*Code*	*List Price*
72	**23 x 35″**	**10″**	**30″**	**240 lbs.**	**Fabelland**	**$36.00**

THE CHAMPION "MIDWAY" SPIRAL-GEARED MACHINISTS' FORGE

WITH CAST IRON HEARTH

Size of Hearth 23 x 35 Inches

Fan 10 Inches in Diameter

No. 73. With Half Hood.

No. 73 Champion "Midway" or Cross Spiral-Geared Forge is the same as the No. 72, with the exception that it has half hood.
No. 74 Forge has Full Hood.

No.	*Hearth*	*Fan*	*Height*	*Weight*	*Code*	*List Price*
73	**23 x 35″**	**10″**	**30″**	**250 lbs.**	**Fabeltwelt**	**$40.00**
74	**23 x 35″**	**10″**	**30″**	**280 lbs.**	**Fabianam**	**43.00**

THE CHAMPION
"MIDWAY" SPIRAL-GEARED RIVET FORGE
WITH CAST IRON HEARTH

Size of Hearth 22 Inches in Diameter **Fan 10 Inches in Diameter**

No. 75. With Shield.

No. 75 Champion "Midway" Spiral-Geared Rivet Forge has cast iron hearth, and is supplied with the "Midway" or Cross Spiral Gearing; same as the Blower shown on pages 40 and 41. It is a good, strong and durable Forge, and will give the best of satisfaction, where a Forge less expensive than the Forges in the Famous 400 line is wanted. It is suitable for Jewelers, Bicycle Repairers, Tempering tools, Tank Builders, Miners, Prospectors, Boilermakers, Elevated Railroad Contractors, Oil Field Work, etc.

No.	*Hearth*	*Fan*	*Height*	*Weight*	*Code*	*List Price*
75	**22″**	**10″**	**33″**	**170 lbs.**	**Fabelweise**	**$30.00**

THE CHAMPION "MIDWAY" SPIRAL-GEARED TOOLMAKERS' FORGE

WITH CAST IRON HEARTH

Size of Hearth 22 Inches in Diameter **Fan 10 Inches in Diameter**

No. 76. With Half Hood.

No. 76 Champion "Midway" or Cross Spiral Geared Forge is the same as the No. 75, with the exception that it has half hood.

No. 77 Forge has full hood.

No.	*Hearth*	*Fan*	*Weight*	*Code*	*List Price*
76	22″	10″	180 lbs.	Fabricaba	$33.00
77	22″	10″	200 lbs.	Fabricados	36.00

THE CHAMPION "MIDWAY" SPIRAL-GEARED RIVET FORGE

WITH STEEL HEARTH

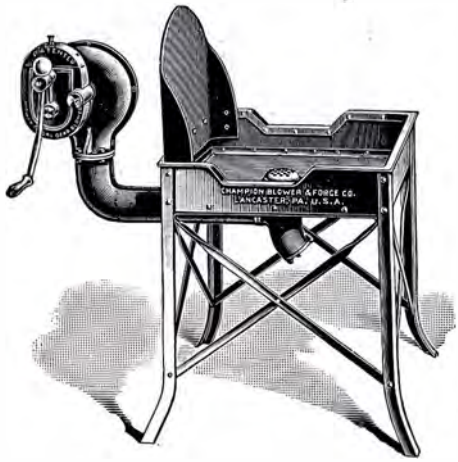
No. 78. With Shield.

No. 78 Champion "Midway" Spiral-Geared Steel Rivet Forge enables us to furnish a very-well built steel rivet forge in the "Midway" line for those who do not wish a cast-iron hearth, such as the No. 75, shown on page 46. This Forge produces a good blast and is sold guaranteed as a first-class Forge in every respect and has the advantage in packing for transportation that cast-iron forges do not enjoy, for the reason that it can be knocked down and packed very closely and again set up in a short time for operation. For those not wishing to invest the money for the highest grade and most perfect steel Forge ever built, No. 401 shown on page 8, we recommend this Forge. This forge is suitable for Bridge Builders, Elevated and Steam Railroad Contractors, Tank Builders, Miners, Prospectors, and Boiler Makers. Crank turns either way to make the blast.

No.	*Hearth*	*Fan*	*Height*	*Weight*	*Code*	*List Price*
78	**18″**	**10″**	**30″**	**120 lbs.**	**Fabela**	**$31.00**
78A	**22″**	**10″**	**30″**	**130 lbs.**	**Fabelarem**	**34.00**
78B	**24″**	**10″**	**30″**	**135 lbs.**	**Fabulurent**	**37.00**
With half hood, extra						**3.00**

THE CHAMPION
"MIDWAY" SPIRAL-GEARED RIVET FORGES
WITH STEEL HEARTH

Size of Hearth 24 x 24 Inches **Fan 10 Inches in Diameter**



No. 79. With Shield.

No. 79 Champion "Midway" Steel Rivet Forge has Square Hearth with Angle Steel Legs rivcted to the Hearth, being built and braced firmly and substantially.

Its gearing for operating the Blower is the same as No. 70 Blower shown on pages 40 and 41, the only difference being that this Forge has a fan 10 inches in diameter.

This Forge is well built and will produce a strong, substantial Blast. It is nice running in its gearing and is recommended to those looking for a Steel Forge of this style sold at a moderate price.

The shape of the Hearth makes it a particularly desirable forge for Government Use, Race Horse Stables, Elevated and Steam Railroads, Prospectors and Tank Builders, etc.

No	*Hearth*	*Fan*	*Height*	*Weight*	*Code*	*List Price*
79	24 x 24″	10″	30″	185 lbs.	Frabelo	$40.00
79½	30 x 30″	10″	30″	215 lbs.	Frabotats	49.00
With half hood, extra						5.00

THE CHAMPION "MIDWAY"
SPIRAL-GEARED BLACKSMITH STEEL FORGES

Size of Hearth 30 x 36 Inches **Fan 12 Inches in Diameter**

No. 80. With Half Hood.

No. 80 Champion Blacksmith's Steel Forge represents a substantial built steel forge, with heavy steel plate and legs firmly riveted to the hearth and substantially braced. It has perpendicular sides 6 inches wide making the hearth 6 inches deep, covering every demand for an up-to-date blacksmith fire.

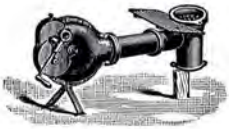
The Blower and Gearing on this Forge is the Midway Spiral Gearing, as used on the Midway Blower, shown on pages 40 and 41.

This Forge is supplied with Heavy Nest Tuyere Iron, weighing 50 lbs.; the same Tuyere Iron furnished with Midway Blower.

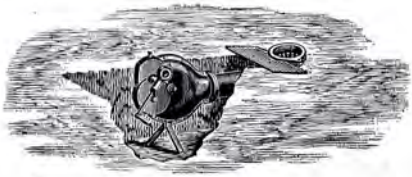
This Blower is well built, quiet and easy running, and guaranteed as strictly first class blacksmith blast-making Forge at a moderate price.

No.	*Hearth*	*Fan*	*Height*	*Weight*	*Code*	*List Price*
80	**30 x 36″**	**12″**	**30″**	**305 lbs.**	**Fracebor**	**$58.00**
80½	**30 x 40″**	**12″**	**30″**	**315 lbs.**	**Fraceons**	**63.00**
With water tank, extra						**5.00**

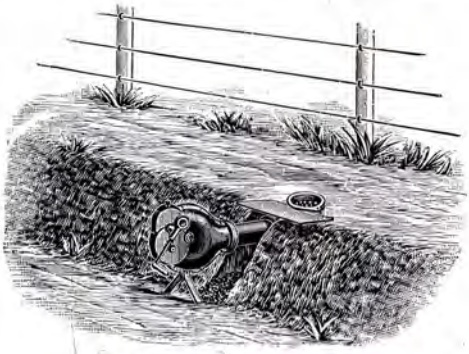
THE CHAMPION PROSPECTORS', MINERS' AND TOOL CHEST FORGE



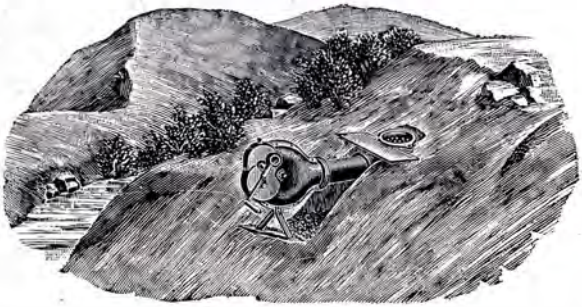
No. 1.



No. 2.



No. 3.



No. 4.

The Champion Prospectors', Miners' and Tool Chest Forge is a tool for Prospectors, Miners and for a Mechanic's tool chest. The object of this Forge is **compactness, lightness of weight and convenience** without sacrificing the satisfaction of a strictly first class blast.

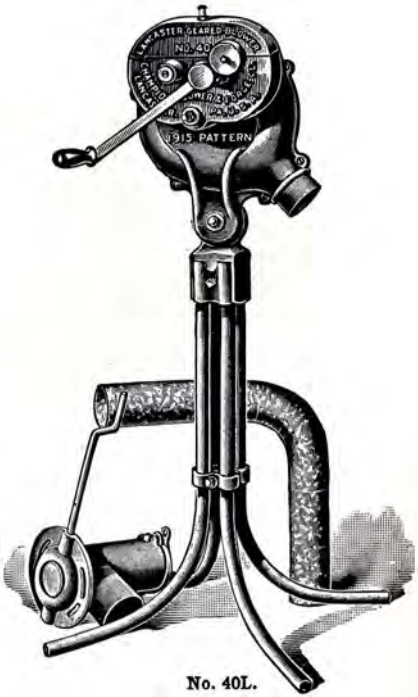
By referring to cut No. 1 it will be seen the blower is run by direct gearing and the tuyere iron is connected to the blower by piping, making it a strong and substantial Forge. With the legs folded the blower and tuyere iron are in a straight line, making it easy and convenient to strap to a burro for Prospectors or for strapping in a tool chest.

The various cuts show how the Blower can be set up to a clay hearth under different conditions, making a most complete Forge.

No.	*Fan*	*Weight*	*Code*	*List Price*
27	**8″**	**55 lbs.**	**Fabaray**	**$20.00**

THE CHAMPION
LANCASTER GEARED BLOWERS

No. 40.



No. 40L.

The Champion Lancaster Geared Blowers show improvement in general construction, which makes them the best low-priced blower that has ever been placed on the market.

The improvement consists of an increase in the size of the gear case, allowing larger gears and larger bearings, whereby the life of the blower is doubled, and the fan case is constructed heavier and stronger.

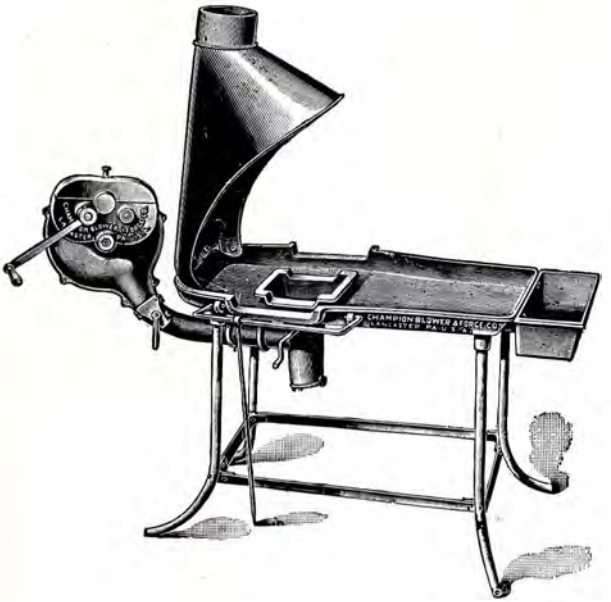
The Champion Lancaster Geared Blowers are well built, low priced, direct-driven blowers which meet the demand for a lower priced blower than the Famous 400 Champion "Patented" High Speed Spiral-Geared Blower, shown on pages 2, 3, 4 and 5, or the "Midway" Spiral-Geared Blacksmith Blower, shown on pages 40 and 41. This Blower is supplied with the Champion Patent Adjustable Nozzle Tuyere Iron and Pipe complete. Extra large gears are used, all accurately cut, running in a bath of oil and all lubricated same as on our higher priced Blowers. The high speed spindle is equipped with a case hardened end thrust ball bearing—the only Ball Bearing Blower at its price on the market. It is smooth running, with the crank turning either direction to make the blast, and goes out with our recommendation as a first-class blower.

Blower can be furnished with Cast-iron Pedestal or with four steel legs, as shown.

No.	*Fan*	*Weight*	*Code*	*List Price*
40	**12″**	**120 lbs.**	**Fabulonem**	**$20.00**
40L	**12″**	**100 lbs.**	**Fabust**	**20.00**

THE CHAMPION
LANCASTER GEARED BLACKSMITH FORGE

Size of Hearth 32 x 45 Inches **Fan 12 Inches in Diameter**



No. 41. With Half Hood.

No. 41 Champion Lancaster Geared Blacksmith Forge is a well-built direct-drive Blacksmith Forge with Cast Iron Hearth which has been built to meet the demand for a cheaper Forge.

The Blower and Gearing used on this Forge is precisely the same as the No. 40 Blower shown on page 52.

The Tuyere Iron used on this Forge is a Heavy Nest Ball Tuyere Iron, weighing 50 lbs.

It therefore represents a complete, well built, Blacksmith Forge at a very reasonable price.

No.	*Hearth*	*Fan*	*Height*	*Weight*	*Code*	*List Price*
41	32 x 45″	12″	30″	360 lbs.	Fabulo	$50.00
With water tank, extra						5.00

THE CHAMPION
LANCASTER GEARED AGRICULTURAL FORGE

Size of Hearth 23 x 35 Inches **Fan 12 Inches in Diameter**

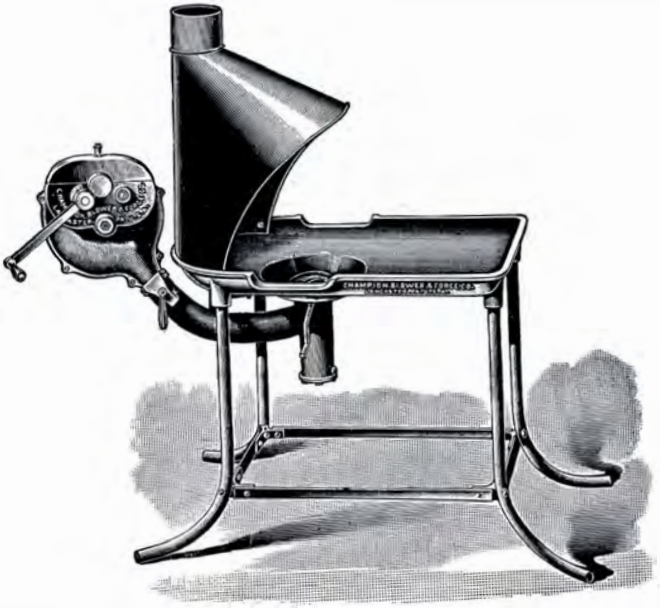
No. 42. With Shield.

No. 42 Champion Lancaster Geared Agricultural Forge is the same in its direct gearing for making blast as the No. 40 Lancaster Geared Blower, page 52. This makes a well-built, low-priced direct-drive forge; a good blast producer and is recommended for farmers' use. It is well finished in every respect with a large size hearth and fan, and is a suitable Agricultural Forge where a direct-drive forge of these dimensions is required.

No.	*Hearth*	*Fan*	*Height*	*Weight*	*Code*	*List Price*
42	**23 x 35″**	**12″**	**30″**	**235 lbs.**	**Fabriker**	**$36.00**

THE CHAMPION
LANCASTER GEARED AGRICULTURAL FORGE

Size of Hearth 23 x 35 Inches **Fan 12 Inches in Diameter**



No. 43. With Half Hood.

No. 43 Champion Lancaster Geared Direct-Drive Agricultural Forge, is the same as No. 42, page 54, except that it has a half hood in place of a shield and is suitably adapted for indoor work.

No.	*Hearth*	*Fan*	*Height*	*Weight*	*Code*	*List Price*
43	23 x 35″	12″	30″	240 lbs.	Fabrefacto	$40.00

THE CHAMPION
LANCASTER GEARED AGRICULTURAL FORGE

Size of Hearth 22 Inches **Diameter of Fan 10 Inches**

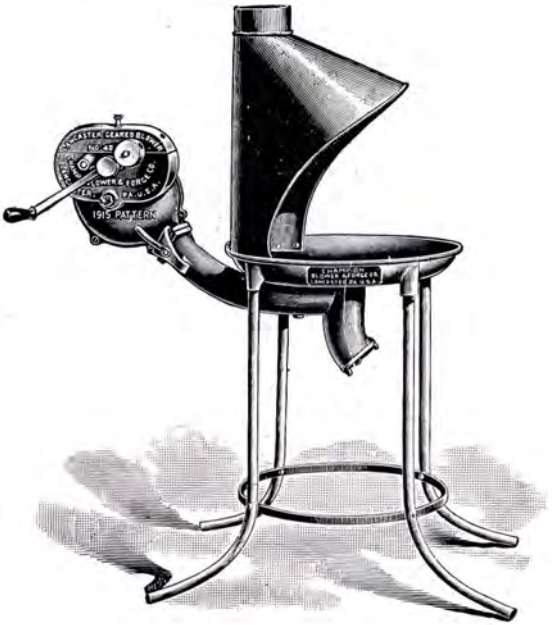
No. 45. With Shield.

No. 45 Champion Lancaster Geared Agricultural Forge with shield is a suitable direct-drive forge for Farmers, Garage and general use where a well-built, cut-geared, low-priced, good blast producer is desired. The gearing for making blast is similar to the No. 40 Lancaster Geared Blower, page 52. It is a strong light forge for all kinds of portable work. It can be easily carried about and makes the best low-priced rivet forge ever manufactured for heating or preheating with coal or charcoal.

No.	*Hearth*	*Fan*	*Weight*	*Code*	*List Price*
45	**22″**	**10″**	**145 lbs.**	**Fabaraz**	**$27.00**

THE CHAMPION
LANCASTER GEARED AGRICULTURAL FORGE

Size of Hearth 22 Inches **Fan 10 Inches in Diameter**



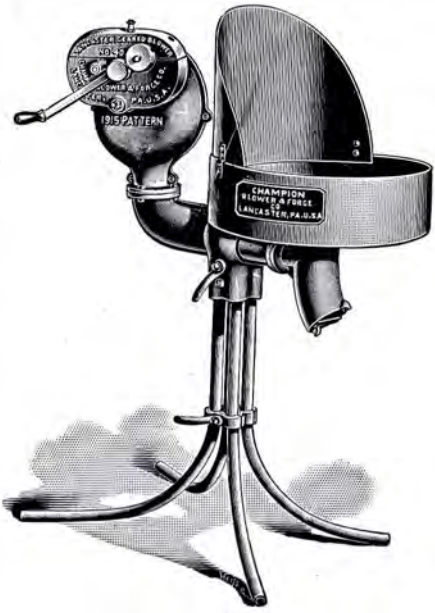
No. 46. With Half Hood.

No. 46 Champion Lancaster Geared Agricultural Forge with half hood, is the same in construction and finish as No. 45, page 56, except that it is supplied with half hood in place of shield, making it suitable for tempering tools and inside work in garages and elsewhere.

No.	*Hearth*	*Fan*	*Weight*	*Code*	*List Price*
46	**22″**	**10″**	**150 lbs.**	**Fabison**	**$30.00**

THE CHAMPION
LANCASTER GEARED RIVET FORGES

Size of Hearth 18 x 22 x 7 Inches **Fan 10 Inches in Diameter**



No. 48. With Shield.

No. 48 Champion Lancaster Geared Rivet Forge is a new steel forge added to our already complete line. This Steel Forge is supplied with the Lancaster Geared Blower used and shown on Forge No. 45, shown on page 56, making it a very convenient, light and serviceable Rivet Forge at a moderate price.

For further particulars as to gearing and construction of this Blower, read description of No. 40 Blower and No. 45 Forge on pages 52 and 56.

No.	*Hearth*	*Fan*	*Height*	*Weight*	*Code*	*List Price*
48	**18″**	**10″**	**30″**	**130 lbs.**	**Fabo**	**$31.00**
48A	**22″**	**10″**	**30″**	**135 lbs.**	**Faboter**	**34.00**
48B	**24″**	**10″**	**30″**	**140 lbs.**	**Fabotest**	**37.00**
With half hood, extra						**3.00**

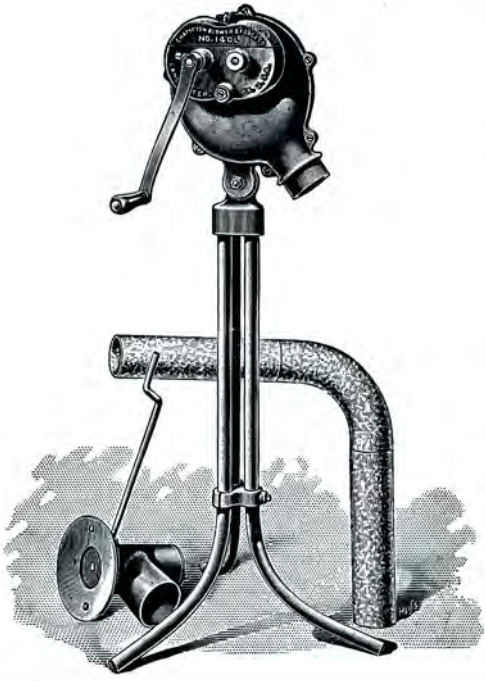
THE CHAMPION LANCASTER GEARED ARMY AND NAVY FOLDING FORGE

Size of Hearth 18x22x7 Inches **Fan 10 Inches in Diameter**

No. 49 Champion Lancaster Geared Army and Navy Folding Forge is of the latest design, with the legs, tuyere pipe and blower head detachable, yet when assembled—rigidly attached in their proper position. When the loose parts are detached and packed in the case, they are firmly held in place, withstanding any amount of rough handling without breakage. This Forge is equipped with pressed steel handles to lift the forge about. The Gearing is the same as the No. 40 Lancaster Geared Blower, shown on page 52 of our catalogue, equipped with helical high-speed gearing, and bushings on all bearings, making it the best low-priced Folding Forge on the market.

No.	*Hearth*	*Fan*	*Height*	*Weight*	*Code*	*List Price*
49	18 x 22 x 7″	10″	28″	110 lbs.	Franker	$38.00

THE CHAMPION EUREKA GEARED BLOWER



The Champion Eureka Geared Blower is built to meet the demands of the small blacksmith and farmer, who desires a low-priced blower producing a blast sufficient for all needs.

This blower is built with high-speed helical gearing, giving 48 revolutions of the blast wheel to one turn of the crank, and the gearing is enclosed in a dust-proof, oil-tight gear case. It is smooth running, with crank turning either direction to make the blast.

It is furnished with a Ball Tuyere Iron and pipe complete.

No.	*Fan*	*Weight*	*Code*	*List Price*
140L	**10″**	**75 lbs.**	**Gabuntaler**	**$16.00**

THE CHAMPION EUREKA GEARED FORGES

Size of Hearth 23 x 30 Inches **Fan 10 Inches in Diameter**

No. 142.

No. 142 Champion Eureka Geared Forge is equipped with a Cut-Geared Crank-Driven Blower, helical gearing being used to give smooth running and noiseless operation. The gear ratio gives 48 revolutions of the blast wheel to one turn of the crank, making a strong, steady, high-pressure blast with smooth easy turning—crank turning either direction. The gear case is oil-tight and dust-proof.

This Forge, having a 23 x 30-inch hearth, with a 10-inch fan, gives a larger fan and hearth than is usually found on forges of this character. The large size hearth makes it very desirable for Machinists, Garages, Farmers, etc., or any place where a good commodious forge is desired.

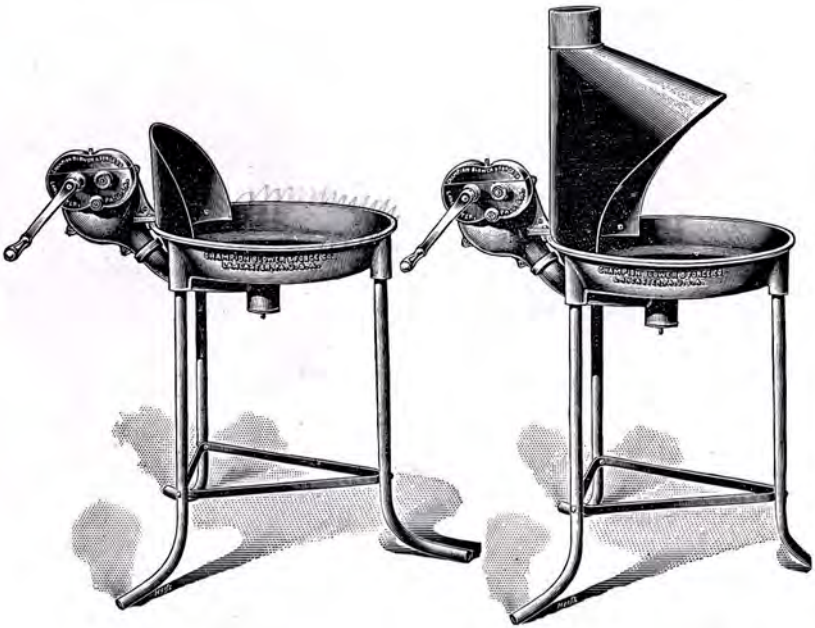
No. 143 Forge has Half Hood.

No. 143.

No.	*Hearth*	*Fan*	*Height*	*Weight*	*Code*	*List Price*
142	23 x 30″	10″	30″	135 lbs.	Gaber	$35.00
143	23 x 30″	10″	30″	140 lbs.	Gabest	40.00

THE CHAMPION EUREKA GEARED FORGES

Size of Hearth 22 Inches **Diameter of Fan 8 Inches**



No. 147. **No. 148.**

No. 147 Champion Eureka Geared Forge is larger in hearth than is usually put on low-priced forges, but it is our desire to give the user a forge beyond the ordinary.

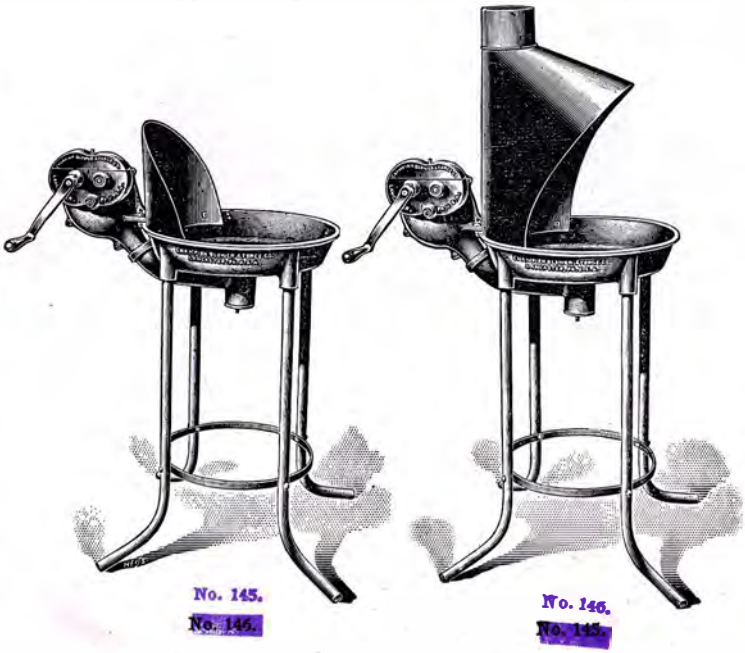
These Improved Forges are equipped with a cut-geared crank-driven blower, helical gearing being used to give smooth running and noiseless operation. The gear ratio gives 48 revolutions of the blast wheel to one turn of the crank, making a strong, steady, high-pressure blast with smooth easy turning—crank turning either direction. The gear case is oil-tight and dust-proof, giving modern advantages over the old lever types of forges, making it especially desired for general medium light work, such as Repairers, Garages, Farmers, etc.

No. 148 Forge has Half Hood.

No.	*Hearth*	*Fan*	*Height*	*Weight*	*Code*	*List Price*
147	**22″**	**8″**	**30″**	**85 lbs.**	**Gaten**	**$24.00**
148	**22″**	**8″**	**30″**	**88 lbs.**	**Gatat**	**27.00**

THE CHAMPION EUREKA GEARED FORGES

Size of Hearth 18 Inches **Diameter of Fan 8 Inches**



No. 145 Champion Eureka Geared Agricultural Forge is equipped with a cut-geared crank-driven blower, helical gearing being used to give smooth running and noiseless operation. The gear ratio gives 48 revolutions of the blast wheel to one turn of the crank, making a strong, steady, high-pressure blast with smooth easy turning—crank turning either direction. The gear case is oil-tight and dust-proof, giving modern advantages over the old lever and wheel type of forge, making them very satisfactory forges for general light and medium repair work, such as Garages, Farmers or any place where a light portable forge is desired.

No. 146 Forge has Half Hood.

No.	*Hearth*	*Fan*	*Height*	*Weight*	*Code*	*List Price*
145	18″	8″	30″	72 lbs.	Game	$14.00
146	18″	8″	30″	75 lbs.	Gaman	16.00

THE CHAMPION AGRICULTURAL CUT GEARED FORGES

Size of Hearth 18 Inches **Fan 7 Inches in Diameter**

No. 135.

No. 135 Forge has been designed for light and medium repair work in garages, farms and plantations.

This forge will be found very convenient for doing light work. The fan is driven by direct drive machine cut gears; therefore, will give a good strong steady blast.

This forge is superior to the light agricultural forges of the lever or cog wheel type. The legs are bolted to the hearth and strongly braced.

No. 136 is same as No. 135 with Half Hood.

No.	*Hearth*	*Fan*	*Height*	*Weight*	*Code*	*List Price*
135	18″	7″	30″	65 lbs.	Fratis	$14.00
136	18″	7″	30″	68 lbs.	Fratac	16.00

THE CHAMPION
AGRICULTURAL CUT GEARED FORGES

Size of Hearth 23 x 30 Inches **Fan 10 Inches in Diameter**

No. 133.

No. 133 Forge with Half Hood for indoor work is a good light weight medium-sized forge for garage work, such as welding iron, preheating, melting babbitt, etc.

The Gears are cut and lay in a bath of oil, in an oil-tight dust proof gear case.

Crank turns either direction to produce blast, and these Forges are silent running, and durable; and will do all the forge work the average garage ever gets.

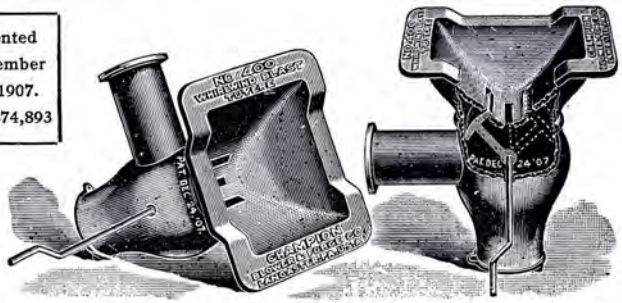
This Forge is supplied with Ball Tuyere Iron, which is set deep, so a large fire can be produced in the pan, which is roomy and made to take bar work, so axles can be straightened or welded when necessary.

No. 132 is the same as No. 133 with Half Hood.

No.	*Hearth*	*Fan*	*Height*	*Weight*	*Code*	*List Price*	
133	23 x 30″	10″	30″	135 lbs.	Frent	$30.00	$35.00
132	23 x 30″	10″	30″	130 lbs.	Frenas	35.00	30.00

NO. 400 CHAMPION "WHIRLWIND" BLAST ANTI-CLINKER HEAVY NEST TUYERE IRON

Patented December 24, 1907. No. 874,893



FOR GENERAL BLACKSMITHS

A Tuyere Iron that makes a " Whirlwind " Blast

Registered in U. S. Patent Office, No. 49,691, Feb. 13, 1906.

With Over One Million "Whirlwind" Blast Anti-Clinker Heavy Nest Tuyere Irons sold in fifteen years, with every user **ready to testify that it heats Iron one-third** quicker, **besides a great reduction in Coal Bills** when figuring up profits at the end of the year's work, **Explains Why:—**

The "Whirlwind" Blast Anti-Clinker Heavy Nest Tuyere Iron is:—A Tuyere Iron true to its name; A Tuyere Iron that produces a circular, rotary blast; A Tuyere Iron that will not blow the heat or hot air up and out of the chimney; A Tuyere Iron from which less blast is wasted 6 inches above the Tuyere than 4 feet above any other Tuyere Iron; A Tuyere Iron that concentrates the blast and heat in the Tuyere Nest, thus makes a hotter fire and heats one-third quicker.

Don't delay installing the **"Whirlwind" Blast** in your fires as it saves at least one-half the heating elements of your coal pile from going up the chimney in waste.

The "Whirlwind" is no secret. We invite comparison. Hold your hand over the top of the "Whirlwind" Blast Tuyere when the blower is in blast and do the same with any other Tuyere Iron and you will immediately discover that less blast is lost 6 inches above the "Whirlwind" Blast Tuyere than 4 feet above any other Tuyere. It will pay to take the time to look this up.

The "Whirlwind" Blast Anti-Clinker Heavy Nest Tuyere Iron is supplied with a revolving pick to remove the clinkers out of the side slots, therefore, the slots can always be kept open without disturbing the fire from the top, assuring you at all times a full capacity of blast and guaranteeing a clean powerful fire.

No. 400 Champion "Whirlwind" Blast Anti-Clinker Heavy Nest Tuyere Iron is 5 inches deep, 8¾ inches wide and 10½ inches long, over all 12⅜ x 14¾ inches, Weight 55 lbs. *Code—Fabulonis*.....**$10.00**

THE CHAMPION HEAVY NEST TUYERE IRONS

No. 4.

No 400B.

No. 4 Champion Heavy Nest Tuyere Iron is intended for large fires of all kinds. It is also very desirable for Horseshoers. It requires no claying up. Its walls are heavy enough to withstand the hottest fires. Size of nest 3¼ inches deep at lowest curve point. Sides are 5¾ inches high. Length of nest 12 inches, with a width of 10 inches over the top.

No.	*Over All Dimension*	*Inside Depth*	*Weight*	*Code*	*List Price*
4	**14¾ x 13½″**	**5¼″**	**70 lbs.**	**Fragent**	**$12.00**

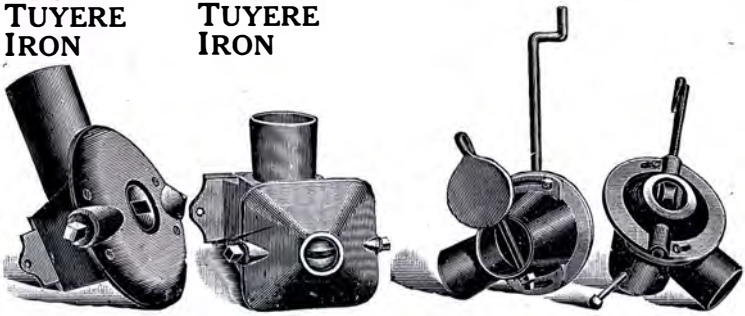
No. 400B Champion Heavy Nest Ball Tuyere Iron is furnished with a center blast heavy nest, ball and rod. This is strictly a first-class Tuyere Iron and will give satisfaction wherever used.

No.	*Over All Dimension*	*Inside Depth*	*Weight*	*Code*	*List Price*
400-B	**11½ x 14″**	**4″**	**50 lbs.**	**Fragelle**	**$8.00**

OLD STYLE CHAMPION BALL TUYERE IRON

NEW CHAMPION BALL TUYERE IRON

CHAMPION PATENT ADJUSTABLE NOZZLE TUYERE IRON



Old Style Champion Ball Tuyere Iron. *Code—Facing* **$3.50**
New Champion Ball Tuyere Iron. *Code—Facility* **$3.50**
Patent Adj. Nozzle Tuyere Iron. *Code—Facilitate* **$3.50**

THE CHAMPION STANDARD IMPROVED BLACKSMITHS' LEVER FORGES

No. 1

No. 1 Champion Standard Improved Blacksmiths' Lever Forge is the best Lever Forge on the market for many reasons.

The Champion Standard Lever Motion is quiet running, in use over 36 years on Champion Forges and Blowers.

It is supplied with the Champion Patented Ball-Joint Oscillating Journal Bearings, requiring oiling but once in 6 months.

The sloped bottom coal box enables the operator to keep the coal in a proper degree of dampness to suit all work.

No.	*Hearth*	*Fan*	*Height*	*Weight*	*Code*	*List Price*
1	32 x 45″	16″	30″	430 lbs.	Fallible	$50.00
With water tank, extra						5.00

THE CHAMPION
STANDARD BOILERMAKERS' LEVER FORGES

No. 2. With Shield.

No. 2 Champion Standard Boilermakers' Lever Forge, is adapted for Boilermakers, Iron Bridge and Ship Builders, Railroad Contractors, Miners, Tank Builders, etc. It is made with the Champion Ball Tuyere Iron. The Lever Motion on this Forge is the Champion Standard, and is now on over 600,000 Forges and Blowers. The Champion Patented Ball-Joint Oscillating Journal Bearings used on this Forge require oiling but once in 6 months.

No.	*Hearth*	*Fan*	*Height*	*Weight*	*Code*	*List Price*
2 with Shield	**23 x 35″**	**12½″**	**30″**	**225 lbs.**	**Fallow**	**$36.00**
3 with Half Hood	**23 x 35″**	**12½″**	**30″**	**230 lbs.**	**Familiar**	**40.00**
4 with Full Hood	**23 x 35″**	**12¼″**	**30″**	**250 lbs.**	**Famine**	**42.00**

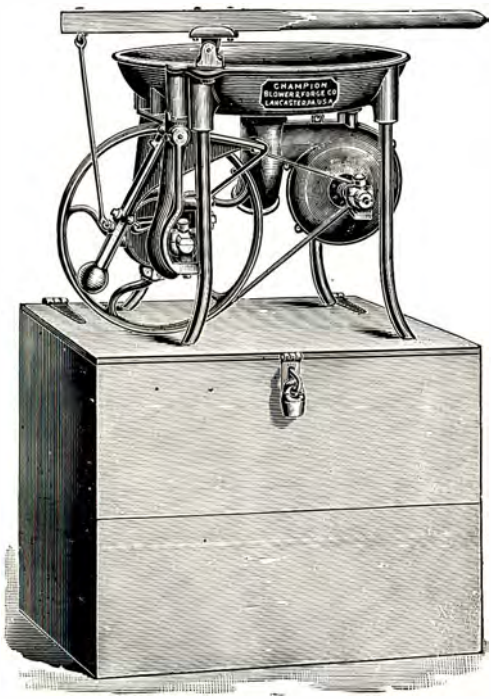
THE CHAMPION
STANDARD PORTABLE LEVER RIVET FORGES

No. 5. With Shield.

No. 5 Champion Standard Portable Lever Rivet Forge is a strong, compact and light Forge desirable for use where noise is an objection, such as Jewelers', Bicycle Repairers', heating and tempering tools, in connection for the use of Tank Builders, Miners and Prospectors, making repairs on Boilers, Bridges, by Elevated Railroad Builders, etc. It is easily carried about the country, being light, strong and compact. The Lever Motion is the quiet running Champion Standard in use over 36 years. The Champion Patented Ball-Joint Oscillating Journal Bearings used on this Forge require oiling but once in 6 months.

No.	*Hearth*	*Fan*	*Height*	*Weight*	*Code*	*List Price*
5 with Shield	**22″**	**10″**	**33″**	**130 lbs.**	**Fanfare**	**$24.00**
6 with Half Hood	**22″**	**10″**	**33″**	**140 lbs.**	**Fantastic**	**27.00**
7 with Full Hood	**22″**	**10″**	**33″**	**150 lbs.**	**Farce**	**30.00**

THE CHAMPION STANDARD MINERS' AND PROSPECTORS' LEVER FORGE



No. 8

No. 8 Champion Standard Miners' and Prospectors' Lever Forge is adapted to give Miners and Prospectors entire satisfaction. It is made with short legs and placed in a case, making it very handy for transportation. The case has also ample room for a full line of Blacksmith's Tools. The Lever Motion on this Forge is the Champion Standard in use 36 years. The Champion "Patented" Ball-Joint Oscillating Bearings used on this Forge, require oiling but once in 6 months.

No.	*Hearth*	*Fan*	*Weight*	*Code*	*List Price*
8 with case	**22″**	**10″**	**180 lbs.**	**Farcial**	**$26.00**
8 without case	**22″**	**10″**	**125 lbs.**	**Fare**	**23.00**

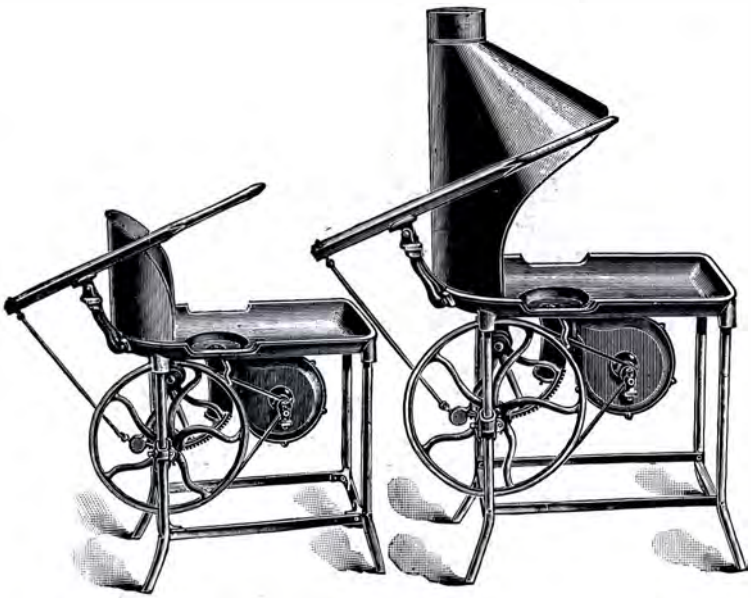
THE CHAMPION IMPERIAL BLACKSMITH LEVER FORGE

No. 81. With Half Hood.

The No. 81 Champion Imperial Lever Blacksmith Forge has been designed to meet the demands of a cheap lever forge. The Imperial Lever Motion is a very simple device. It is a self-acting automatic clutch with no springs to get out of order and without pawls or ratchet dogs to become lost or worn out; therefore, can recommend it for durability, simplicity and easy running. The hearth of this forge is made large and commodious. The fan has a direct blast into the fire and will produce a large and steady blast for all kinds of blacksmith work.

No.	*Hearth*	*Fan*	*Height*	*Weight*	*Code*	*List Price*
81	**32 x 45″**	**14½″**	**30″**	**350 lbs.**	**Fairy**	**$50.00**
With water tank, extra						**5.00**

THE CHAMPION
IMPERIAL AGRICULTURAL LEVER FORGES



No. 82. With Shield.
Formerly No. 998.

No. 83. With Half Hood.
Formerly No. 999.

Nos. 82 and 83 Champion Imperial Lever Forges are large in hearth and fan; suitably adapted for agricultural and garage service. The lever is of the automatic clutch type; simple, efficient and durable. No springs or ratchets to get out of order or become lost, and we recommend them for those seeking a low-priced well-constructed lever forge.

No.	*Hearth*	*Fan*	*Height*	*Weight*	*Code*	*List Price*
82	**23 x 35″**	**12½″**	**30″**	**190 lbs.**	**Fatness**	**$36.00**
83	**23 x 35″**	**12½″**	**30″**	**195 lbs.**	**Favorable**	**40.00**

THE CHAMPION
IMPERIAL LEVER RIVET FORGES

No. 85. With Shield.

No. 86. With Half Hood.

Nos. 85 and 86 Champion Imperial Lever Rivet and Toolmakers' Forges are designed to meet the demands for a low-priced lever forge. The lever motion on these forges is the same as used on the other Imperial Forges and equipped with an automatic clutch, without springs or ratchet dogs to become out of order and lost. They are strong and light forges for all kinds of portable work, such as jewelers, bicycle repairers, tank builders, miners, railroads, farmers, garages, etc.

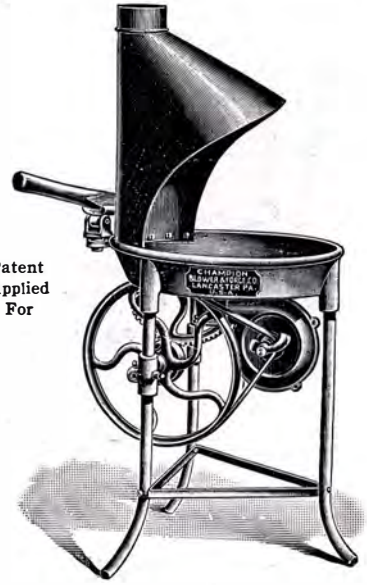
No.	*Hearth*	*Fan*	*Height*	*Weight*	*Code*	*List Price*
85	**22″**	**9¾″**	**33″**	**130 lbs.**	**Fastidious**	**$24.00**
86	**22″**	**9½″**	**33″**	**135 lbs.**	**Fahrenheit**	**27.00**

THE CHAMPION AGRICULTURAL LEVER FORGES

Hearth 22 Inches in Diameter **Fan 9 Inches in Diameter**

No. 100. With Shield.

Patent Applied For



No. 101. With Half Hood.

Nos. 100 and 101 Champion Agricultural Lever Forges are larger Forges in both Hearth and Fan than the usual Agricultural or Farmers' Forges. The Hearth is also deeper and heavier. The bearings are taper turned and long. The Lever is of the positive non-slipping clutch Type, very simple and durable; has been used by us for years. The legs are strongly braced and firmly bolted to the leg sockets, not held by set screws only as on other makes of agricultural forges. These forges are the best, heaviest and most substantial Agricultural or Farmers' Forges that are built. Therefore, where a Forge is wanted at a low price, the difference in cost to the farmer is a good investment, as the real value is represented in its strength, durability and blast.

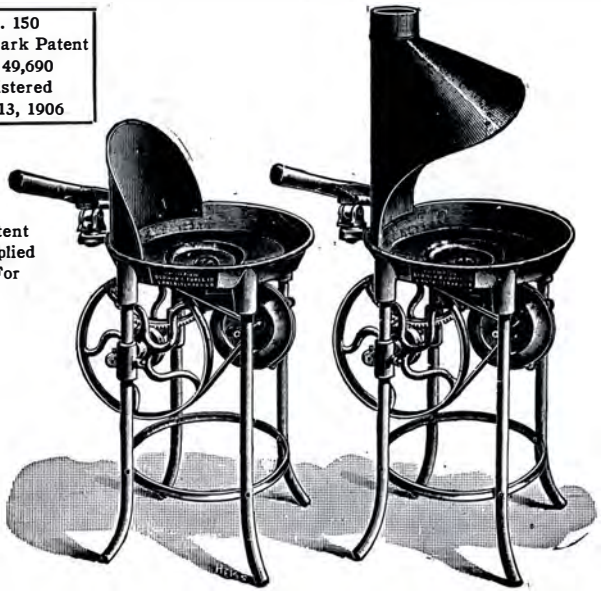
No.	*Hearth*	*Fan*	*Height*	*Weight*	*Code*	*List Price*
100	22″	9″	30″	95 lbs.	Faro	$16.00
101	22″	9″	30″	100 lbs.	Farago	18.00

THE CHAMPION
AGRICULTURAL LEVER FORGES

Size of Hearth 18 Inches in Diameter **Fan 8 Inches in Diameter**

No. 150
Trade Mark Patent
No. 49,690
Registered
Feb. 13, 1906

Patent Applied For



No. 150. With Shield. **No. 151. With Half Hood.**

Nos. 150 and 151 Champion Agricultural Lever Forges have been on the market for many years and are intended for all kinds of very light repair work. They are especially adapted for Farmers who only have use for a Forge occasionally and then only for light work. The hearth is 18 inches in diameter and the fan 8 inches in diameter, with taper-turned bearings. The legs are strongly braced and firmly bolted to the leg sockets, not held by set screws only as on other makes of agricultural forges. They are substantial and well built light Forges.

No.	*Hearth*	*Fan*	*Height*	*Weight*	*Code*	*List Price*
150	**18″**	**8″**	**30″**	**85 lbs.**	**Farrow**	**$14.00**
151	**18″**	**8″**	**30″**	**90 lbs.**	**Farther**	**16.00**

THE CHAMPION AGRICULTURAL CRANK FORGES

Size of Hearth 18 Inches in Diameter **Fan 8 Inches in Diameter**

No. 152. With Shield. **No. 153. With Half Hood.**

Nos. 152 and 153 Champion Agricultural Crank Forges are especially built for Farmers' use or light repairing work of any kind. Size of Hearth is 18 inches in diameter and 4 inches deep. The legs are strongly braced and firmly bolted to the leg sockets, not held by set screws only as on other makes of agricultural forges.

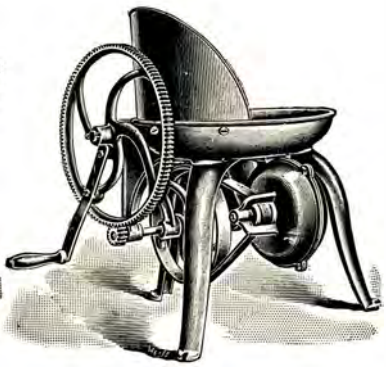
No.	*Hearth*	*Fan*	*Height*	*Weight*	*Code*	*List Price*
152	**18″**	**8″**	**30″**	**80 lbs.**	**Fastolf**	**$14.00**
153	**18″**	**8″**	**30″**	**85 lbs.**	**Fashioner**	**16.00**

THE CHAMPION BENCH CRANK FORGES

Size of Hearth 14 x 17 Inches
Fan 7 Inches in Diameter

No. 21. With Shield.

Size of Hearth 14 Inches in Diameter
Fan 7 Inches in Diameter

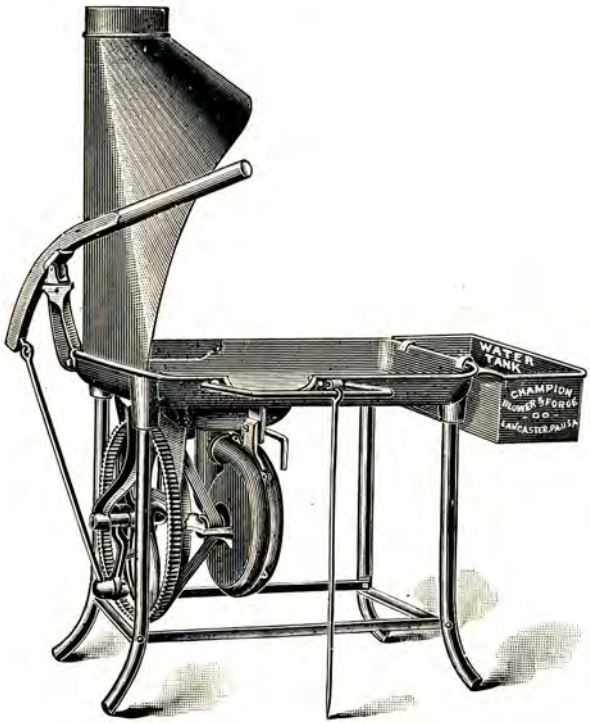


No. 21R. With Shield.

The Champion line of Bench Crank Forges are intended for light work, being very compact and easily moved, having short legs, so when used should be set on a box or bench. Will produce a welding heat on 1-inch iron in ten minutes. It is a very convenient Forge for Prospectors.

No.	*Hearth*	*Fan*	*Weight*	*Code*	*List Price*
21	14 x 17″	7″	50 lbs.	Fatherland	$16.00
22	14 x 17″	7″	55 lbs.	Fathom	18.00
23	14 x 17″	7″	60 lbs.	Fatigue	20.00
21R	14″ dia.	7″	45 lbs.	Fate	14.00
22R	14″ dia.	7″	50 lbs.	Fator	16.00
23R	14″ dia.	7″	55 lbs.	Fatus	18.00

THE CHAMPION LANCASTER RATCHET BLACKSMITHS' LEVER FORGE



No. 61 With Half Hood.

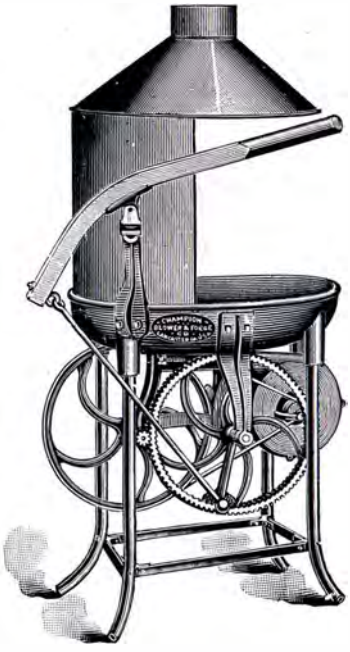
No. 61 Lancaster Ratchet Blacksmiths' Lever Forge is made with a double ratchet and is adapted for all kinds of General Carriage and Blacksmith Work, having sufficient blast for same. Is made with Improved Revolving Anti-Clinker Ball Tuyere Iron for regulating the blast; is guaranteed to be made first-class in every respect.

No.	*Hearth*	*Fan*	*Height*	*Weight*	*Code*	*List Price*
61	**28 x 40″**	**14″**	**30″**	**360 lbs.**	**Faidit**	**$50.00**
With water tank, extra						**5.00**

THE CHAMPION LANCASTER RATCHET LEVER FORGES

Size of Hearth 21 x 27 Inches **Fan 10 Inches in Diameter**

No. 58. With Shield.



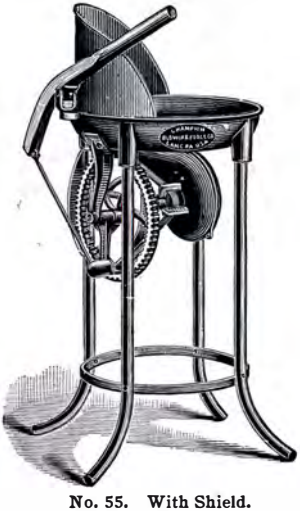
No. 59. With Half Hood.

The Lancaster Ratchet Lever Forges are made with double ratchet, strong and substantial, and adapted for all kinds of medium work, such as Bridge Builders, Boiler and Tank Builders, Miners, Prospectors, Elevated Railroad Builders, Farmers, etc.

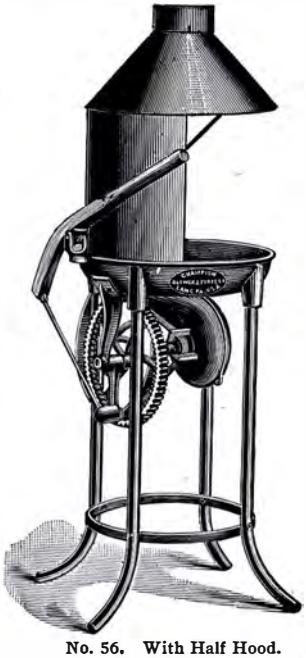
No.	*Hearth*	*Fan*	*Height*	*Weight*	*Code*	*List Price*
58	21 x 27″	10″	29″	185 lbs.	Faillance	$36.00
59	21 x 27″	10″	29″	190 lbs.	Faillant	40.00
60	21 x 27″	10″	29″	200 lbs.	Faillible	42.00

THE CHAMPION LANCASTER RATCHET LEVER FORGES

Size of Hearth 18 Inches in Diameter **Fan 8 Inches in Diameter**



No. 55. With Shield.

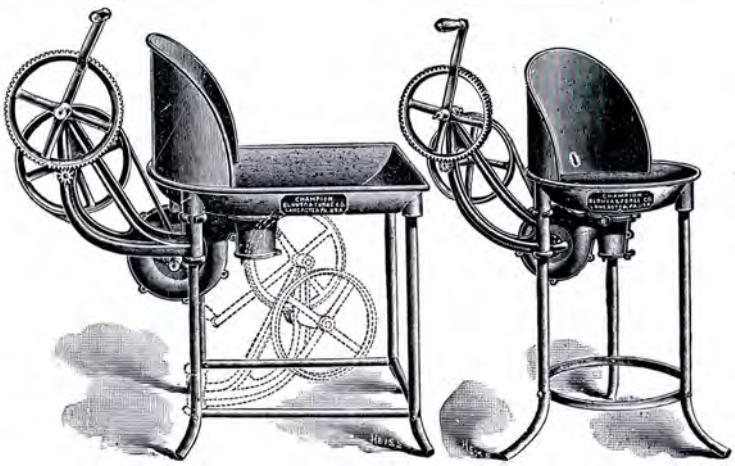


No. 56. With Half Hood.

The Lancaster Ratchet Lever Forges are made with double ratchet, strong and substantial, used by Bridge, Boiler and Tank Builders, Miners, Prospectors, Elevated Railroad Builders, Farmers, etc.

No.	*Hearth*	*Fan*	*Height*	*Weight*	*Code*	*List Price*
55	18″	8″	30″	100 lbs.	Failliet	$24.00
56	18″	8″	30″	105 lbs.	Faina	27.00
57	18″	8″	30″	115 lbs.	Faiscar	30.00

THE CHAMPION BOILERMAKERS' AND TOOLMAKERS' CRANK FORGES



No. 15. With Shield.

No. 18. With Shield.

No. 15 Champion Boilermakers' Crank Forge is designed for Boilermakers', Iron, Ship and Bridge Builders', Railroad Contractors', Miners' and Tank Builders' use.

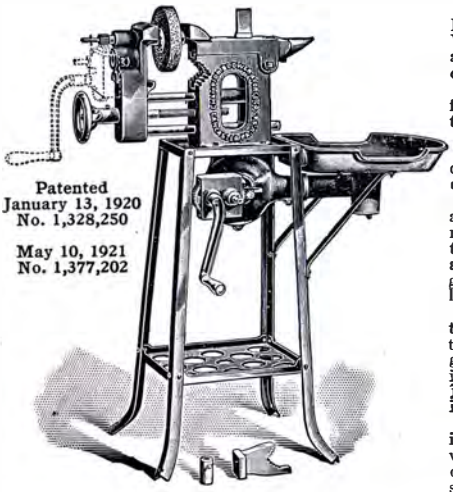
No. 18 Champion Portable Rivet Crank Forge with Shield is a strong blast producer and is adapted for Tank Builders, Elevated Railroad Builders, Miners and Prospectors, for making repairs on Boilers, Bridges, etc.

The principle of turning the arm and gearing underneath the pan, as shown by dotted lines, is very convenient for transportation. The crank turns either way to produce the blast. This is a strictly first-class line of Forges and strong blast producers.

No.	*Hearth*	*Fan*	*Height*	*Weight*	*Code*	*List Price*
15 with Shield	**22 x 28″**	**10″**	**30″**	**170 lbs.**	**Fancy**	**$29.00**
16 with Half Hood	**22 x 28″**	**10″**	**30″**	**175 lbs.**	**Fanciful**	**33.00**
17 with Full Hood	**22 x 28″**	**10″**	**30″**	**190 lbs.**	**Fane**	**35.00**
18 with Shield	**18″ dia.**	**9″**	**33″**	**100 lbs.**	**Fascinate**	**20.00**
19 with Half Hood	**18″ dia.**	**9″**	**33″**	**105 lbs.**	**Fast**	**23.00**
20 with Full Hood	**18″ dia.**	**9″**	**33″**	**115 lbs.**	**Fashion**	**26.00**

THE CHAMPION COMBINATION REPAIR OUTFIT, NO. 30

Six Tools in One: Forge, Vise, Anvil, Pipe Vise, Drill Press, Emery Grinder



The CHAMPION Combination Repair Outfit, equipped with Forge, Vise, Anvil, Pipe Vise, Drill Press and Emery Grinder, is a high grade combination tool built for service.

The gears are all cut. The forge pan is 12" x 14", large enough to take a plow-share. The Blower-gearing is a cut-gear outfit that runs silent and is speeded to produce a white heat so that welding can be done.

This blower-gearing is detachable from the forge and can be mounted in front on the vise. In this way the same gears are engaged as a grinder and drill press. This grinder has three distinct speeds for light, medium and heavy cutting.

The emery wheel is screwed on the stud between the vise jaws attached to the high speed gear on this gear box and two substantial bearings—one on each side of the vise jaws—support this wheel, making it a rigid, durable grinder.

The vise on this combination tool is well made: the jaws for the pipe vise are chilled. The screw is accurately cut and two heavy shafts support the vise so that the jaws meet perfectly.

To convert this machine into a drilling machine, the emery wheel is screwed off the shaft and the anvil top placed at a 90° angle acts as a drill back. The drill bit is inserted in the socket, which takes ¼" shank bits. If specially ordered will be bored ⅜ or 7/16-in. shank bits, and three distinct speeds for wood, iron, light, medium and heavy work. The three speeds on the drill make a practical, smooth-running drill, the gears all being cut, whereas other outfits have cast gears on the drill attachment with one speed only. The pipe vise operates without any change. No parts are removed or lost and this machine takes pipe up to two inches.

The legs are angle steel, well riveted to the top plate and tool tray, and the two steel rods support the forge pan.

This is the most practical repair outfit on the market, furnished complete with one 6 x 1" emery wheel, and one Hardie, as illustrated.

DETAILED DIMENSIONS

Height over all	41 inches	Size of Hardie	⅝ inches
Height to top of Forge Hearth	26 "	Size of Forge Hearth	12x14 "
Width of Vise Jaws	4 "	Depth of Forge Hearth	2 "
Extreme opening of Vise Jaws	4½ "	Speeds obtained by gearing	1 to 1
Capacity of Pipe Vise	2 "		1 to 4, 1 to 22
Capacity of Drill Press	½ "	Size of Emery Wheel	6x1 inches
Greatest distance Spindle to Table	11 "	Floor Space	12x16 "
Spindle bored to take	½ "	Weight Crated	135 pounds
Face of Anvil	3x5¾ "	List Price	$35.00

Code—Six-in-One

THE CHAMPION COMBINATION REPAIR OUTFIT, NO. 31

Forge, Vise, Anvil, Pipe Vise, Drilling Machine

The No. 31 Champion Combination Repair Outfit is indispensable to the farmer, ranch, plantation, home garage, or any light repair shop. Many homes use this tool, for it is convenient for any repair work.

The Frame is angle steel, well riveted to top plate and tool tray, making it stiff, strong and substantial.

The train of gearing operating the blower is machine-cut and is fitted in jig-made case, assuring proper alignment of gears, thereby reducing wear and tear and less noise. This blower produces a good, strong, steady blast.

The Drill is a practical three-speed drill, having cut gears, which makes a silent, smooth running drill. The socket or chuck for holding the drill bit is steel and takes ¼-inch shank. If specially ordered, chuck will be bored to take ⅜-inch shank.

Every tool performs its function just the same as separate individual tools.

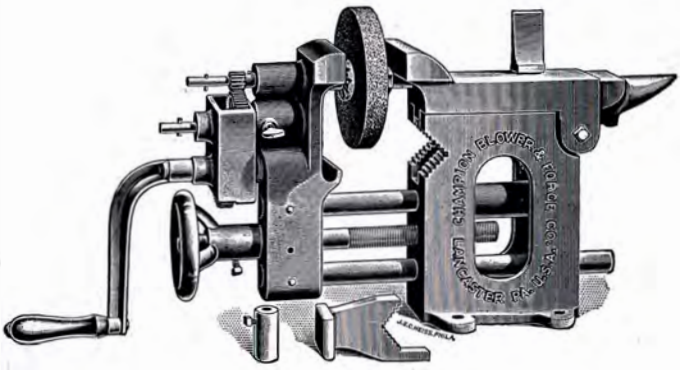
DETAILED DIMENSIONS

Height over all	41 inches
Height to top of Forge Hearth	26 "
Width of Vise Jaws	4 "
Extreme opening of Vise Jaws	4½ "
Capacity of Pipe Vise	2 "
Capacity of Drill Press	½ "
Greatest distance Spindle to Table	11 "
Spindle bored to take	5/16 "
Face of Anvil	3x5¾ "
Size of Hardie	⅝ "
Size of Forge Hearth	12x14 "
Depth of Forge Hearth	2 "
Speeds obtained by gearing	1 to 1, 1 to 4, 1 to 22
Floor Space	12x16 inches
Weight Crated	125 pounds
List Price	$25.00

Code—Five-in-One

THE CHAMPION NO. 32 REPAIRER

Built to do Practical Work



It is strong and substantial when securely lagged to a bench, and consists of the following useful tools such as used daily by the Farmer, Ranchman, Home Garage, or any light repair work.

The Drill is a practical three-speed drill, having cut gears, which makes a silent, smooth running Drill. The socket or chuck for holding the drill bit is steel and takes $\frac{1}{2}$" shank. If specially ordered, the chuck will be bored to take $\frac{11}{64}$" shank.

The Anvil has face 3 inches x $5\frac{3}{4}$ inches, with cutting hardie.

The Emery Wheel—operated by cut gears which runs smooth, easy and noiseless, giving high speed to Emery Wheel for sharp quick cutting.

The Vise—equal to an individual Vise. Jaws 4 inches wide opening $4\frac{1}{2}$ inches.

The Pipe Vise has a capacity for 2-inch pipe.

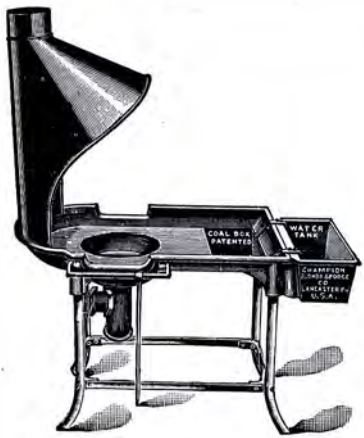
Every Tool performs its function just the same as separate individual tools. Its first cost is soon saved.

DETAILED DIMENSIONS

Height over all	22 inches
Width of Vise Jaws	4 "
Extreme opening of Vise Jaws	$4\frac{1}{2}$ "
Capacity of Pipe Vise	2 "
Capacity of Drill Press	$\frac{1}{2}$ "
Spindle bored to take	$\frac{1}{2}$ "
Face of Anvil	3x5$\frac{3}{4}$ "
Size of Hardie	$\frac{5}{8}$ "
Speeds obtained by gearing	1 to 1, 1 to 4, 1 to 14
Weight Crated	75 pounds
List Price	$15.00

Code—Four-in-One

THE CHAMPION STATIONARY BLAST FORGES



No. 11. With Half Hood.

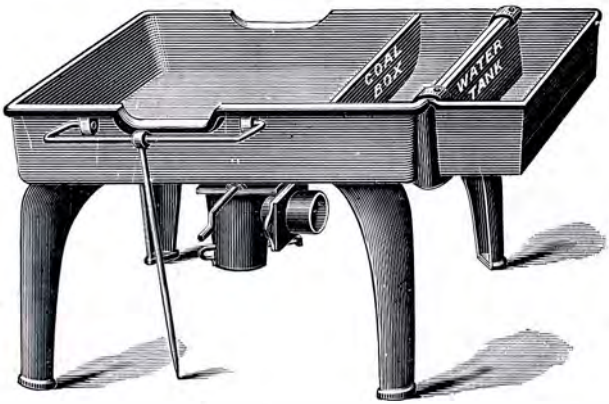
No. 11¼. With Half Hood.

No. 11 Champion Stationary Blast Forge is a large and practical hearth for a stationary forge for blacksmith fires. It is supplied with a sloped bottom coal box, enabling the operator to keep the coal at proper degree of dampness to suit the work. This forge is regularly fitted with Whirlwind Blast Anti-Clinker Heavy Nest Tuyere Iron and Champion Blast Gate.

No. 11¼ Champion Machinists' Stationary Blast Forge is used by machinists in shops where a power blast is used. This forge is provided with the Champion Blast Gate and Revolving Ball Tuyere Iron.

No.	*Hearth*	*Height*	*Weight*	*Code*	*List Price*
11	32 x 45″	30″	315 lbs.	Fallthor	$26.00
11¼	23 x 35″	30″	145 lbs.	Falcolotto	24.00
With water tank, extra					5.00

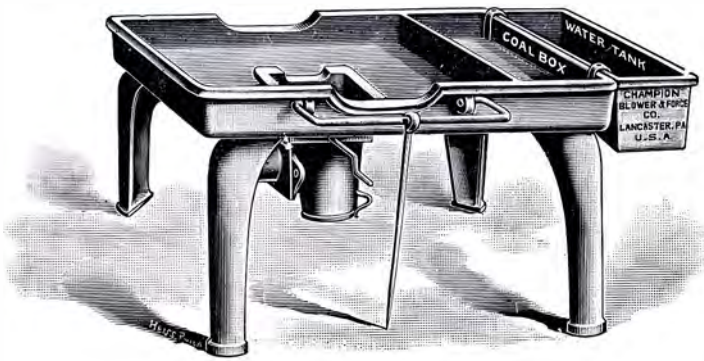
THE CHAMPION STATIONARY BLAST FORGES



No. 12.

Nos. 12, 12½, 13½ and 11½ Champion Stationary Blast Forges are made Extra Heavy for all kinds of blacksmith fires,—far superior to building a forge of brick or stone. These Forges are made for power but can be used for hand, Electric blower or bellows as well. They are supplied with the Champion Blast Gate Water Tank and the No. 400 Champion "Whirlwind" Blast Anti-Clinker Heavy Nest Tuyere Iron without extra cost.

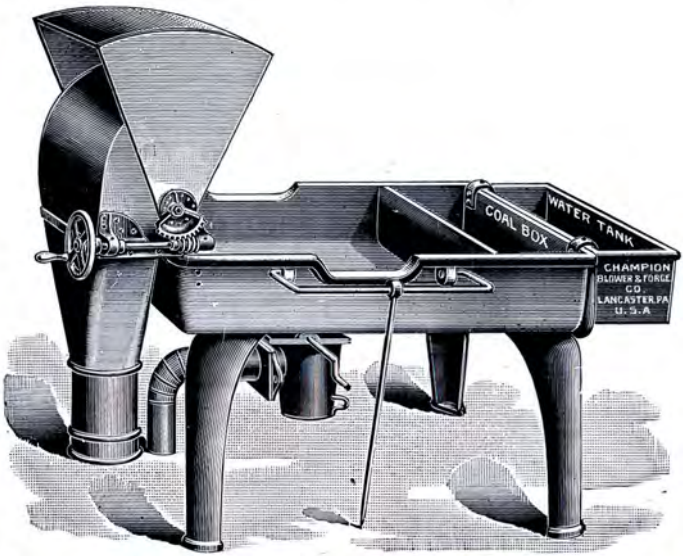
No.	*Hearth*	*Height*	*Depth*	*Weight*	*Code*	*List Price*
12	38 x 42″	26″	7″	450 lbs.	Faint	$42.00
12½	39 x 52″	26″	7″	515 lbs.	Falated	50.00
13½	48 x 62″	26″	7″	835 lbs.	Falchion	90.00
11½	38 x 42″	26″	3¼″	400 lbs.	Frager	36.00
With Half Hood, extra						6.25



No. 11½.

THE CHAMPION STATIONARY DOWN DRAFT FORGE HOOD

Shown on No. 12 Stationary Forge



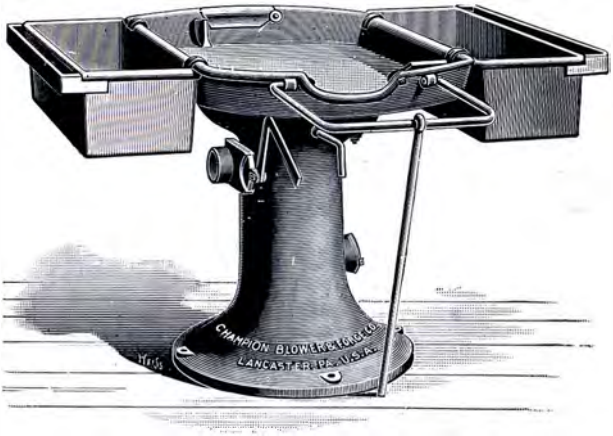
No. 12. With Down Draft Hood Attachment.

The Champion Adjustable Down Draft Forge Hood is shown attached to a No. 12 Stationary Forge. The Champion Down Draft Forge Hood is built to attach to the following Stationary Forges: Nos. 11½, 12, 12½, 13½ and 11¾ shown on pages 87 and 89, also Nos. 33, 34, 35 and 36, shown on pages 90 and 91.

When using a Down Draft Hood on a Forge, it should be understood that all natural draft is done away with. It is, therefore, necessary to use a Power Blower to make the blast and an Exhaust Fan to draw all smoke, gases and fumes from the fire and shop generally. The Champion Down Draft Forge Hood is made from cast iron, stiff, strong and substantial. It is adjustable, therefore can be lowered and raised to suit the work being done or to meet the wishes of the operator.

The Champion Stationary Down Draft Forge Hood furnished to fit either of the above Stationary Forges, Weight 270 lbs. *Code—Falconara*.....**$35.00**

THE CHAMPION STATIONARY COLUMN FORGES



No. 11¾ Champion Stationary Blast Forge with Tanks, Hearth 24 x 36½ In., Height 26 In., Depth of Hearth 3½ In. Weight 400 lbs. *Code—Fallador* $36.00
Canopy Hood, Extra 5.00

No. 11¾ D. D. Forge, as shown above with Down Draft Hood attached. Weight 600 lbs. *Code—Fallarum* $70.00

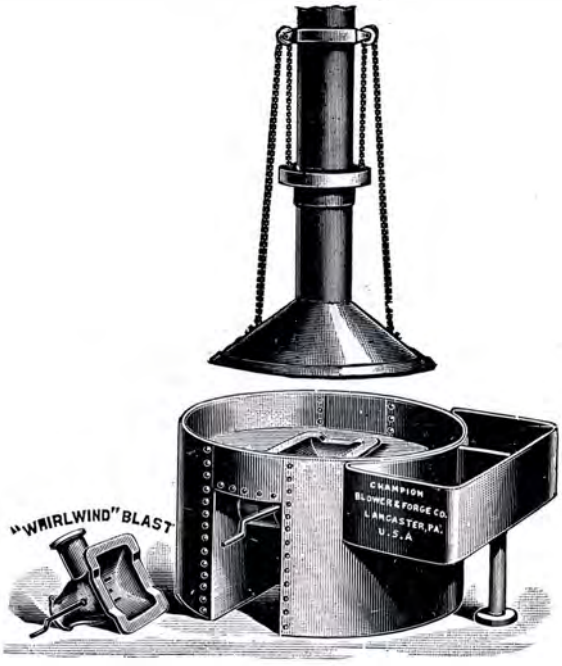
THE CHAMPION
STEEL STATIONARY BLAST FORGES

No. 33. With Half Hood.

Nos. 33 and 34 Champion Steel Stationary Blast Forges are built from Steel Plate and Structural Steel. They are suitable for any kind of Blacksmith work. Nothing handsomer, stronger or more complete ever built for a Stationary Blast Forge. Nos. 33 and 34 are supplied with the Champion Blast Gate and the No. 400 Champion "Whirlwind" Blast Anti-Clinker Heavy Nest Tuyere Iron.

No.	*Hearth*	*Height*	*Weight*	*Code*	*List Price*
33	**30 x 36″**	**30″**	**230 lbs.**	**Falltrank**	**$30.00**
34	**30 x 40″**	**30″**	**240 lbs.**	**Falltuch**	**35.00**
Horseshoers' Full Hood, extra					**16.00**
Water tank, extra					**5.00**

THE CHAMPION
STEEL STATIONARY BLAST FORGES



No. 35.

The Champion Nos. 35 and 36 Round Steel Stationary Blast Forges are built from Heavy Steel Plate and Structural Steel. Where room is an object it often meets a demand no other Stationary Blast Forge can meet. They are supplied with the Champion Blast Gate, also No 400 Champion "Whirlwind" Blast Anti-Clinker Heavy Nest Tuyere Iron. The Telescopic Canopy Hood is the most satisfactory and complete Forge Hood that ever has been placed on a Forge. The fact that the Hood is counter-balanced by a cast iron ring around the pipe, makes it easy to raise or lower, and will remain without fastening at any height desired by the mechanic.

No.	*Hearth*	*Height*	*Weight*	*Code*	*List Price*
35	**36″**	**30″**	**475 lbs.**	**Fallugie**	**$100.00**
36	**45″**	**30″**	**580 lbs.**	**Fallunt**	**120.00**
36½	**60″**	**30″**	**800 lbs.**	**Falzone**	**150.00**

Telescopic Hood, extra. **See page 95.**

THE CHAMPION
STEEL STATIONARY BLAST FORGES

The Champion Nos. 38, 39 and 39½ Square Steel Stationary Blast Forges are built for the Heaviest shop work possible out of Heavy Steel Plate and Structural Steel. They are well adapted for railroad shops and ship-yards. They are supplied with a Champion Blast Gate and the No. 400 Champion "Whirlwind" Blast Anti-Clinker Heavy Nest Tuyere Iron.

No.	*Hearth*	*Height*	*Weight*	*Code*	*List Price*
38	42 x 42″	25″	375 lbs.	Fagot	$100.00
39	54 x 54″	25″	415 lbs.	Faror	160.00
39½	72 x 72″	25″	550 lbs.	Faralous	235.00

THE CHAMPION
COMPRESSED AIR RIVET FORGES

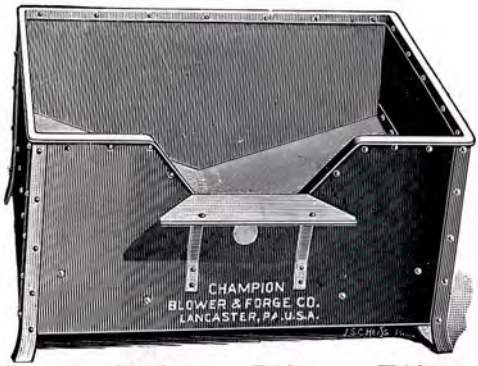
No. 9.

No 990 A-C-D.

The Champion Compressed Air Rivet Forges are Steel Forges equipped for compressed air exclusively, and adopted where heating rivets by compressed air is desired; built with especially constructed needle valve to handle pressure up to 100 pounds, mixing the outside air with compressed air in proportion five to one. These forges are re-enforced and constructed very stout to withstand hard use.

No.	*Hearth*	*Height*	*Weight*	*Code*	*List Price*
9	18″	30″	70 lbs.	Facthomas	$25.00
990A	18″	31″	70 lbs.	Shipper	22.00
990C	22″	31″	80 lbs.	Shipment	26.00
990D	24″	31″	90 lbs.	Shipest	28.00

CHAMPION STEEL DERRICK FORGE



No. 37 Champion Indestructible Steel Derrick Forge is made of steel plate and structural steel, in a light but durable manner.

If so ordered, we can furnish this forge with two openings for the fuel pipe.

This Forge is suitable for burning coal or coke, and is particularly well adapted for the oil-well trade.

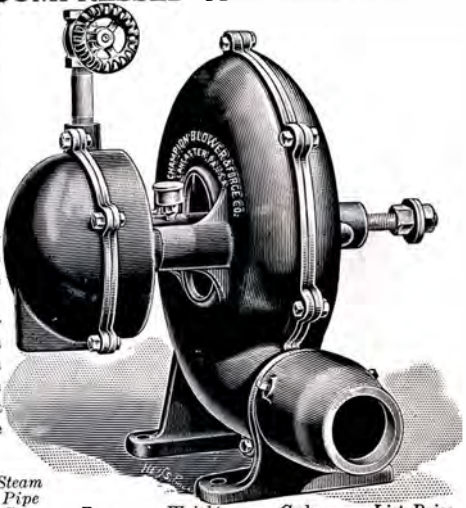
No.	*Hearth*	*Height*	*Weight*	*Code*	*List Price*
37	**35 x 45″**	**25″**	**235 lbs.**	**Falltar**	**$45.00**

THE CHAMPION STEAM JET OR COMPRESSED AIR BLOWERS

Champion Stream or Compressed Air Blowers are built strong and durable, requiring a minimum jet of either steam or compressed air; particularly adapted for Oil-Well Contractors, for use where any air blast is desired, for forge purposes and ventilation.

The blast producing wheel in this blower has six blades with side reinforcements, giving a larger volume of blast and greater pressure than any similar blower now on the market.

The shaft has a threaded extension beyond the side of the fan case fitted with lock nuts for an emery wheel attachment, which makes it the highest grade and most efficient blower of its type on the market today.



No.	*Height*	*Diam. Outlet*	*Diam. Outlet Pipe Connection*	*Steam Pipe Connection*	*Fan*	*Weight*	*Code*	*List Price*
1	**14⅝″**	**2⅝″**	**1½″**	**½″**	**8½″**	**55 lbs.**	**Bet**	**$ 50.00**
3	**16⅜″**	**3¼″**	**2″**	**½″**	**10″**	**80 lbs.**	**Betten**	**60.00**
4	**19″**	**4⅜″**	**3″**	**¾″**	**11″**	**115 lbs.**	**Bettap**	**80.00**
7	**30″**	**6¼″**	**5″**	**¾″**	**17″**	**215 lbs.**	**Bettas**	**180.00**

THE CHAMPION TELESCOPIC CANOPY HOOD

The Champion Telescopic Canopy Hood is the most satisfactory and complete forge hood that has ever been placed on a forge.

This Hood is counterbalanced by a cast iron ring around the pipe, making it easy to raise or lower, which can be done in an instant and will permit the hood to remain, without fastening it, to any height desired.

No. 35 Champion Telescopic Canopy Hood, 36 In. in Diam., Pipe 9 In. in Diam., Maximum Length 9 Ft. and 2 In., Minimum Length 6 Ft. and 10 In., Weight 100 lbs. *Code—Fallwild*.....**$30.00**

No. 36 Champion Telescopic Canopy Hood, 42 In. in Diam., Pipe 9 In. in Diam., Maximum Length 9 Ft. and 2 In., Minimum Length 6 Ft. and 10 In., Weight 110 lbs. *Code—Fallsur*..... **46.00**

No. 36½ Champion Telescopic Canopy Hood, 54 In. in Diam., Pipe 9 In. in Diam., Maximum Length 10 Ft., Minimum Length 7 Ft., Weight 150 lbs. *Code—Falsiclen*..... **55.00**

THE CHAMPION ADJUSTABLE CAST IRON FORGE HOOD

The Champion Adjustable Cast Iron Forge Hood is a strong heavy hood with adjustable features not found on any other Forge Hood. The adjusting features are such that the fire can be more thoroughly covered and therefore the smoke and draft more thoroughly drawn up the chimney. It has adjustable opening or closing feature in the rear. Under all conditions and under all drafts this hood is a very desirable one and is manufactured for all size forges.

Champion Adjustable Cast Iron Forge Hood, Size 15 In. x 9 In., Weight 120 lbs. *Code—Falle*.....**$18.00**

CHAMPION BALL BEARING THREE-JAW CHUCK

Patent Applied For

Takes all size straight shank bits from 0 to $\frac{3}{8}$ inch.

The simplest and most practical three-jawed chuck on the market. The jaws work from the center of the chuck, insuring perfect alignment, instead of laying against outside shell of chuck, as most chucks are made.

By referring to the illustration, you will notice the jaws on the Champion Chuck are forced together evenly when the shell of chuck is drawn up, the pressure being so great that all size bits up to full capacity of the chuck are guaranteed not to slip.

No wrench is necessary to tighten or loosen the Champion Chuck, as the ball-bearing end thrust makes turning easy. Ball Retainer is used to hold the balls in case the Chuck is taken apart.

This Chuck is small in diameter, so that short bits can be used and the work being drilled can readily be seen by the operator.

Diameter of Champion Chuck $1\frac{3}{4}$ inches; length over all $2\frac{1}{4}$ inches.

The taper hole in Champion Chuck can be fitted with any size arbor; $\frac{1}{2}$ inch, $\frac{41}{64}$ inch. or No. 1, No. 2, No. 3 or No. 4 Morse Taper, as ordered.

Weight 1 lbs. $5.00

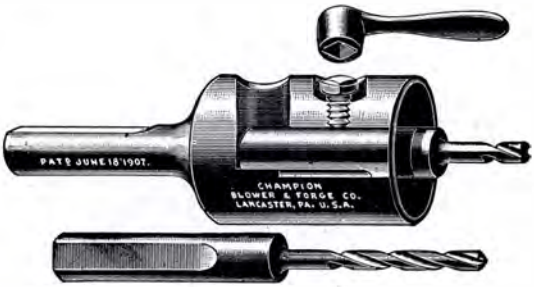
Arbors to fit above Chuck:

$\frac{1}{2}$ inch or $\frac{41}{64}$ inch Arbor ..... .85

No. 1, No. 2 or No. 3 Morse Taper 1.25

No. 4 Morse Taper 2.00

THE CHAMPION NEVER SLIP DRILL CHUCK



We Do Not Manufacture or Sell Drill Bits.

The Champion "Patented" Never Slip Drill Chuck is made of one piece, and is positively interlocking without a loose part to it.

The interlocking feature of the Champion "Patented" Chuck is a square shoulder, worked out of the solid metal, in which the flat side of the drill bit shank fits; thus locking the bit from turning in chuck.

The Set Screw is countersunk, leaving no protrusion; meeting safety laws in all conditions.

Special Notice. All Champion Drill Spindles are manufactured to hold bits the same as the Champion "Patented" Never Slip Chuck invention, without extra charge.

No. 1 Champion Never Slip Drill Chuck with Wrench Complete to Fit all Champion Drills with $\frac{1}{4}$-inch hole and take in $\frac{5}{8}$- or $\frac{21}{64}$-inch Straight Shank Drill Bits.
Code—Fielde **$3.50**

No. 2 Champion Never Slip Drill Chuck with Wrench Complete to Fit all Champion Drills with $\frac{5}{8}$- or $\frac{21}{64}$-inch hole and take in $\frac{1}{2}$-inch Straight Shank Drill Bits.
Code—Fielboar **3.50**

We can furnish a chuck with either $\frac{1}{2}$- or $\frac{21}{64}$-inch shank to take in any size square shank drill bits **3.50**

To meet the demand of those using Morse Taper Shank Drill Bits, we are able to apply a Morse Taper Hole to the spindles of any of our Drill Presses not regularly equipped thus, if specially ordered, at the following extra prices:

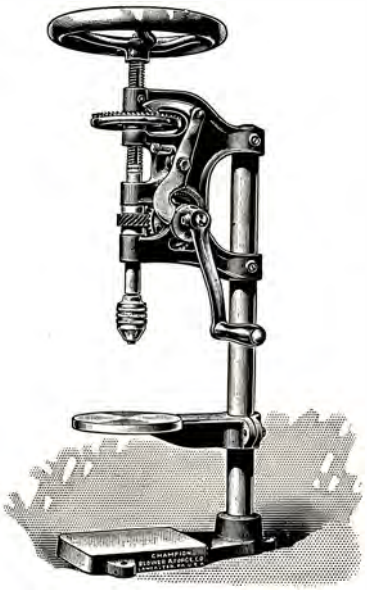
No. 1 Morse Taper Hole **$2.00**
No. 2 Morse Taper Hole **3.00**
No. 3 Morse Taper Hole **4.00**
No. 4 Morse Taper Hole **5.00**

All friction between the feed screw and spindle on Champion Drills is taken up by an End Thrust Ball Bearing, which travels between two hardened, ground and polished plates; the balance as shown on illustration.

The balls are not loose and free, travelling one against the other, but are held in place by a retainer, which not only prevents the friction of one ball travelling against the other but carries in the walls of the retainer a sufficient quantity of grease to keep the balls lubricated without attention for at least a six months' period. The retainer holds these balls as a single unit, which prevents them from falling out or becoming lost in reassembling the drill.

This is the same end thrust construction that is used on all the highest priced automobiles

CHAMPION WORM GEAR BENCH DRILL NO. 301



No. 301 Worm-gear Bench Drill is equipped with automatic self-feed which feeds continuous, drilling at a variety of speeds, which can be adjusted according to the work.

The cut Worm-gears run noiseless, and are guaranteed durable. Has wheel feed which can be used for hand feeding.

The spindle is equipped with end-thrust ball bearing with hardened steel races, making a frictionless durable bearing.

The fly wheel makes two revolutions to each turn of the crank, developing momentum which carries the drill bit through the work without exerting the energy required in operating a Drill which is furnished without a fly wheel.

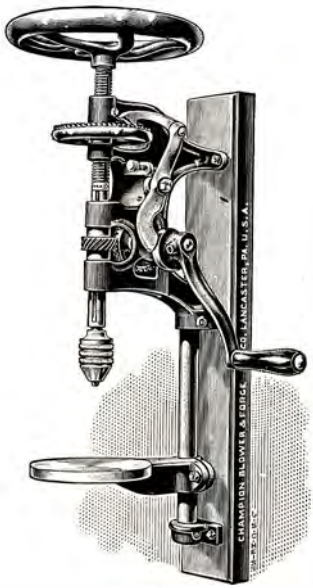
Table and base are lathe turned and work can be drilled on base as well as on table. All parts are standard, interchangeable, jig-made; no babbitt being used in the entire construction.

SPECIFICATIONS

Travel of spindle 2⅝ inches.
Capacity from smallest to ½ inch.
Chuck has three jaws taking straight shank bits up to ½ inch.
Height over-all 32 inches.
Drills to center of 12-inch circle.
Greatest distance between chuck and base 13 inches.
Length of column 25 inches.
Diameter of column 1½ inches.
Weight 65 lbs. *Code—Driller.*

List Price **$30.00**

CHAMPION WORM GEAR POST DRILL
NO. 300



No. 300 Worm-gear Post Drill is equipped with automatic self-feed, which feeds continuous, drilling at a variety of speeds, which can be adjusted according to the work.

The cut Worm-gears run noiseless, and are guaranteed durable. Has wheel feed which can be used for hand feeding.

The spindle is equipped with end-thrust ball bearing with hardened steel races, making a frictionless durable bearing.

The fly wheel makes two revolutions to each turn of the crank, developing momentum which carries the drill bit through the work without exerting the energy required in operating a Drill which is furnished without a fly wheel.

Table is lathe-turned and all parts are standard, interchangeable, jig-made, no babbitt being used in the entire construction.

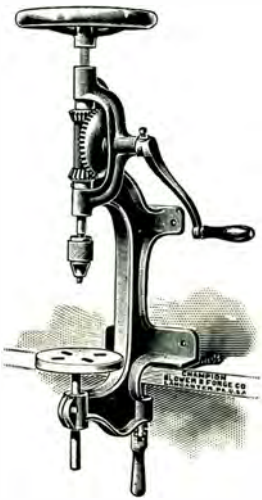
SPECIFICATIONS

Travel of spindle 2⅝ inches.
Capacity from smallest to ½ inch.
Chuck has three jaws taking straight shank bits up to ½ inch.
Height over-all 31 inches.
Drills to center of 12-inch circle.
Greatest distance between chuck and table 7 inches.
Weight 50 lbs. *Code—Drillman.*

List Price.....$20.00

CHAMPION BENCH DRILLS

No. 600.



No. 99.

No. 600 Bench Drill has adjustable bed plate; with bearings ground out of the solid metal. Has adjustable handle, hand feed and one speed.

SPECIFICATIONS

Drills to center of 12-inch circle.
Drills holes up to $\frac{1}{2}$ inch.
Spindle $\frac{13}{16}$-inch in diameter; has up and down run of $3\frac{1}{2}$ inches.
Greatest distance between table and spindle 9 inches. Height $28\frac{1}{2}$ inches.
Spindle bored like Champion Never Slip chuck, for $\frac{1}{2}$-inch bits; if specially ordered, to take $\frac{1}{64}$-inch shank bits.

Weight 40 lbs. *Code—Feint*..... **$13.00**

No. 99 Bench Drill can be attached either to the bench or wall. Has automatic feed controlled by revolving the crank and quick-return operated by suddenly ceasing the crank speed. Has die cast gears, heavy balance wheel and lathe-turned table adjustable to any height. Furnished with Champion three-jawed steel chuck.

SPECIFICATIONS

Drills to center of 12-inch circle.
Drills holes up to $\frac{1}{2}$ inch.
Spindle $\frac{5}{8}$-inch in diameter; has up and down run of $1\frac{5}{8}$ inches.
Greatest distance between table and chuck $7\frac{1}{2}$ inches. Height $28\frac{1}{4}$ inches.

Weight 50 lbs. *Code—Fetide*..... **$25.00**

CHAMPION HAND-FEED POST DRILLS

Made with Ball Bearings

No. 92.

No. 92½.

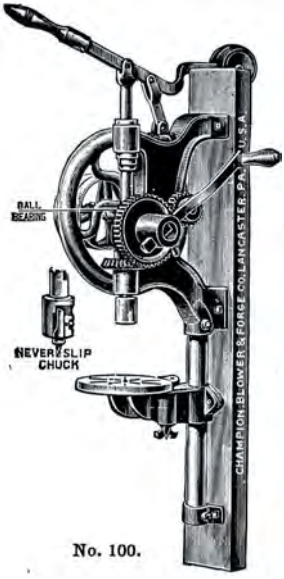
No. 92 Drill is a plain drill without a flywheel, while the No. 92½ is the same construction with a flywheel. Have one speed, hand feed and end thrust ball bearings made of the best grade lathe-turned tool steel, which saves 50 per cent. in power. All bearings are ground out of the solid metal. No babbitt used on these drills. Lathe-turned and slotted table. All parts machine-jigged, therefore, standard and interchangeable.

SPECIFICATIONS

Drills to center of 12-inch circle.
Drills holes up to ¾ inch.
Spindle ⅛-inch diameter; has up and down run of 3 inches.
Greatest distance between table and spindle 8 inches.
Height 35 inches. Spindle bored like Champion Never Slip Chuck, for ½-inch shank bits; if specially ordered, to take ⅝-inch shank bits.

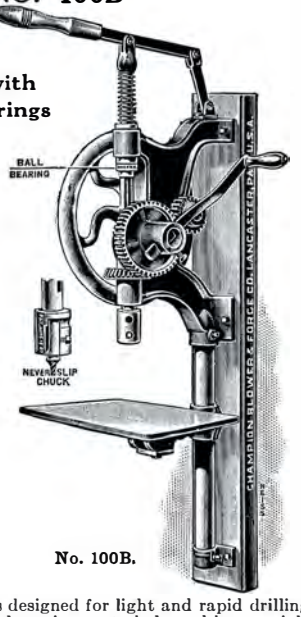
No. 92.	**Weight 50 lbs.**	*Code—Feeler*	**$10.00**
No. 92½.	**Weight 75 lbs.**	*Code—Fesor*	**11.00**

CHAMPION LEVER-FEED POST DRILLS
NO. 100 AND NO. 100B



No. 100.

Made with Ball Bearings



No. 100B.

No. 100 Lever-Feed Back-Geared Post Drill is designed for light and rapid drilling, reaming and countersinking in iron or wood. The lever is counterbalanced by a weight which brings the bit out of the work as soon as the hole is drilled.

SPECIFICATIONS

Drills to center of 14-inch circle. Drills holes up to $\frac{3}{4}$ inch.
Spindle 1 inch in diameter; has up and down run of $3\frac{1}{2}$ inches.
Greatest distance between table and spindle 10 inches. Height of drill 40 inches.
Spindle bored like Champion Never Slip Chuck, for $\frac{1}{2}$-inch shank bits; if specially ordered to take $\frac{1}{16}\frac{1}{4}$-inch shank bits.
Weight 100 lbs. *Code—Fenceless*..... **$18.00**
No. 100P Drill, same as above with tight and loose pulleys, 6-inch diameter and 2-inch face for power. Speed 250 R.P.M.
Weight 125 lbs. *Code—Felspart*..... **23.00**

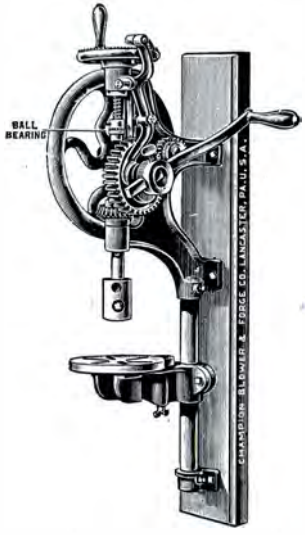
No. 100B Drill is designed for battery drilling, with large table and long run of table suitable for any size battery. Bit is immediately raised from out of the hole just drilled by means of a spring on the feed rod.

SPECIFICATIONS

Drills to center of 14-inch circle. Drills holes up to $\frac{3}{4}$ inch.
Spindle 1 inch in diameter, has up and down run of $3\frac{1}{2}$ inches.
Greatest distance between table and spindle 24 inches.
Height of drill 52 inches.
Spindle bored like Champion Never Slip Chuck, for $\frac{1}{2}$-inch shank bits, if specially ordered to take $\frac{1}{16}\frac{1}{4}$-inch shank bits.
Weight 142 lbs. *Code—Fetnor*..... **$18.00**
No. 100BP Drill, same as above with tight and loose pulleys, 6-inch diameter and 2-inch face for power. Speed 250 R.P.M.
Weight 147 lbs. *Code—Fetmar*..... **23.00**

CHAMPION SELF-FEED POST DRILL NO. 102

Made with Ball Bearings



No. 102 Champion Post Drill has the same capacity as the No. 101 Drill shown on page 104, only is lighter in weight, and is particularly serviceable for light work.

Spindle has End Thrust Ball Bearings.

All Bearings are ground out of the solid metal.

No Babbitt used on this Drill.

End Thrust Ball Bearings save 50 per cent. in power and are made from the highest grade of lathe-turned tool steel.

Has automatic self-feed.

It has lathe-turned and slotted table.

Champion Drills are all machine jigged, therefore all parts are absolutely standard and interchangeable.

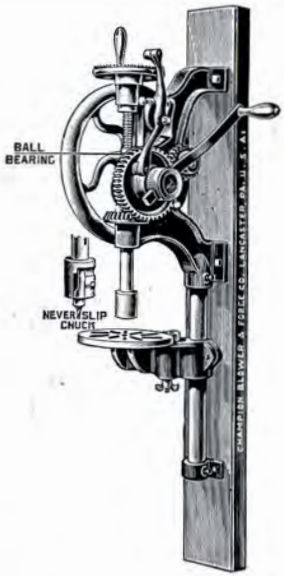
SPECIFICATIONS

Drills to the center of a 12-inch circle.
Drills from 0 to $\frac{3}{4}$-inch holes.
Spindle $\frac{7}{8}$-inch in diameter; has up-and-down run of 3 inches.
Greatest distance from table to spindle, $8\frac{3}{4}$ inches. Height of drill, 34 inches.
Spindle bored like Champion Never Slip Chuck to take in $\frac{1}{2}$-inch Straight Shank Drill Bits. If specially ordered to take in $\frac{5}{8}$-inch or $\frac{11}{64}$-inch.

Weight 65 lbs. *Code—Fasich*..... **$11.00**

CHAMPION SELF-FEED POST DRILL
NO. 101

Made with Ball Bearings



No. 101 Champion Post Drill is a first-class Tool for light work.

Spindle has End Thrust Ball Bearings.

All Bearings are ground out of the solid metal.

No Babbitt used on this Drill.

The End Thrust Ball Bearings save 50 per cent. in power and are made from the highest grade of lathe-turned tool steel.

Has Automatic Self-Feed.

It has lathe-turned and slotted table.

Champion Drills are all machine-jigged, therefore all parts are absolutely standard and interchangeable.

SPECIFICATIONS

Drills to the center of 12-inch circle.
Drills from 0 to $\frac{3}{4}$-inch hole.
Spindle $\frac{7}{8}$-inch in diameter; has up-and-down run of 3 inches.
Greatest distance from table to spindle $8\frac{3}{4}$ inches. Height of drill, 35 inches.
Spindle bored like Champion "Patented" Never Slip Chuck to take in $\frac{1}{2}$-inch Straight Shank Drill Bits. If especially ordered to take in $\frac{5}{8}$-inch or $\frac{41}{64}$-inch.

Weight 80 lbs. *Code—Fesapo*..... **$13.00**

CHAMPION SELF-FEED POST DRILL NO. 98

Made with Ball Bearings

No. 98 Champion Post Drill is a first-class back-geared Drill.

Spindle has End Thrust Ball Bearings.

All Bearings are ground out of the solid metal.

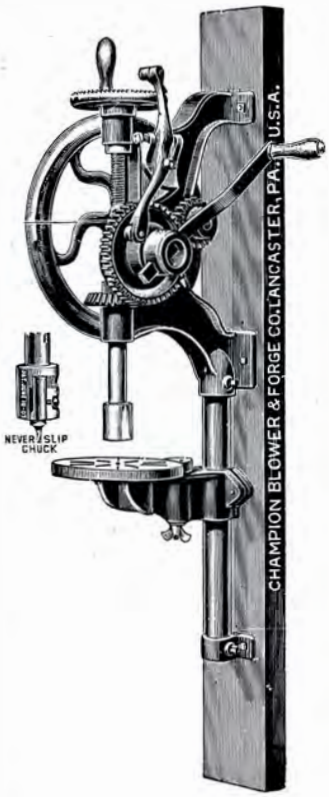
No Babbitt used on this drill.

End Thrust Ball Bearings save 50 per cent. in power and are made from the highest grade of lathe-turned tool steel.

Has Automatic Self-Feed.

It has lathe-turned and slotted table.

Champion Drills are all machine-jigged, therefore all parts are absolutely standard and interchangeable.



SPECIFICATIONS

Drills to the center of a 14-inch circle.

Drills from 0 to 1-inch hole.

Spindle 1 inch in diameter; has up-and-down run of 3 inches.

Greatest distance from table to spindle, 10 inches. Height of drill, 40 inches.

Spindle bored like Champion "Patented" Never Slip Chuck to take in ½-inch Straight Shank Drill Bits. If especially ordered to take in ⅝-inch or $\frac{1}{64}$-inch.

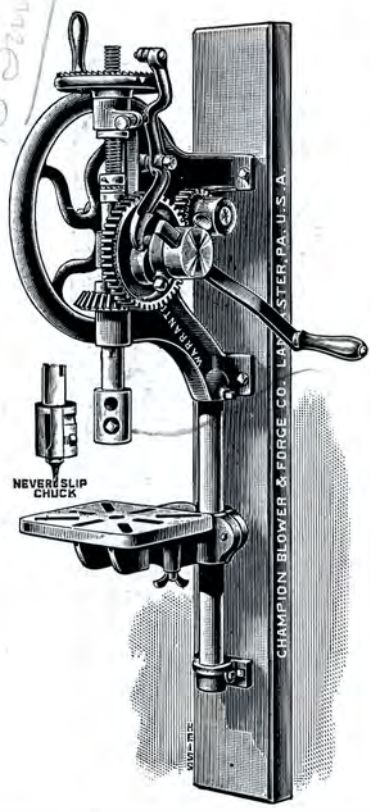
Weight 100 lbs. *Code—Fearless* . . . **$16.00**

No. 98P Drill, same as above, with Tight and Loose Pulleys, 6 Inches in Diameter, 2-Inch Face for Power. Speed 250 R.P.M.

Weight 105 lbs. *Code—Fencible*. . . **$21.00**

CHAMPION SELF-FEED POST DRILL NO. 91

Made with Ball Bearings



No. 91 Champion Self-Feed Post Drill has two speeds and back gears.

Spindle has End Thrust Ball Bearings.

All Bearings are ground out of the solid metal.

No Babbitt used on this Drill.

The End Thrust Ball Bearings save 50 per cent. in power and are made from the highest grade of lathe-turned tool steel.

Has Automatic Self-Feed.

It has lathe-turned and slotted table.

Champion Drills are all machine-jigged, therefore all parts are absolutely standard and interchangeable.

SPECIFICATIONS

Drills to the center of a 14½-inch circle.

Drills from 0 to 1-inch hole.

Spindle 1⅛ inches in diameter; has up-and-down run of 3 ins.

Greatest distance from table to spindle, 10 inches. Height of drill, 43 inches.

Spindle bored like Champion "Patented" Never Slip Chuck to take in ½-inch Straight Shank Drill Bits. If especially ordered to take in ⅝-inch or ¾-inch.

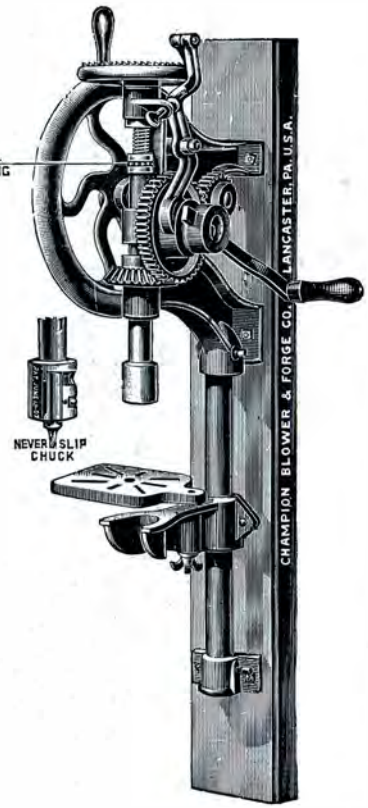
Weight 100 lbs. *Code—Feenwell*..... **$18.00**

No. 91P Drill, same as above, with Tight and Loose Pulleys, 6 Inches in Diameter, 2-Inch Face for Power. Speed 250 R.P.M. Weight 105 lbs. *Code—Festen*.. **23.00**

CHAMPION SELF-FEED POST DRILL NO. 90

Made with Ball Bearings

No. 90 Champion Automatic Self-Feed Post Drill represents in design the world's "Original" or first $10.00 Post Drill; producing a world's sensation in 1890 for the Champion, and today represents twice the tool it did then.



Spindle has End Thrust Ball Bearings.

All Bearings are ground out of the solid metal.

No Babbitt used on this Drill.

End Thrust Ball Bearings save 50 per cent. in power and are made from the highest grade of lathe-turned tool steel.

Has Automatic Self-Feed.

It has lathe-turned and slotted table.

Champion Drills are all machine-jigged, therefore all parts are absolutely standard and interchangeable.

SPECIFICATIONS

Drills to the center of a 14½-inch circle.

Drills from 0 to 1-inch hole.

Spindle 1⅛ inches in diameter; has up-and-down run of 3 inches.

Greatest distance from table to spindle, 10 inches. Height of drill, 43 inches.

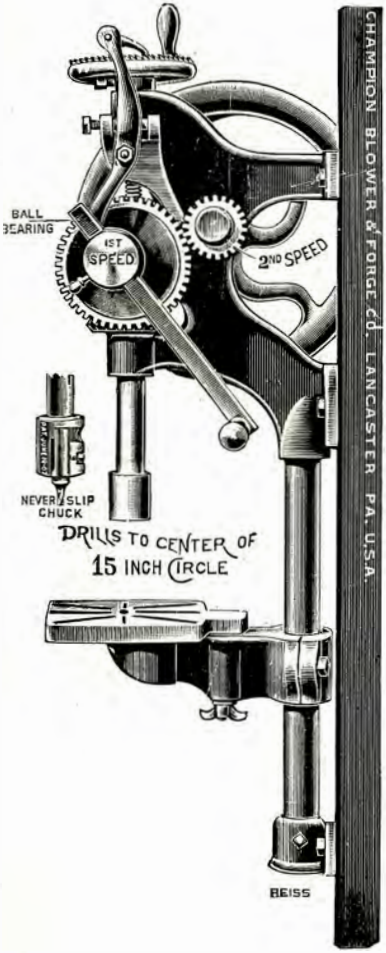
Spindle bored like Champion "Patented" Never Slip Chuck to take in ½-inch Straight Shank Drill Bits. If especially ordered to take in ⅝-inch or 41/64-inch.

Weight 100 lbs. *Code—Febrile*.....**$18.00**

No. 90P Drill, same as above, with Tight and Loose Pulleys, 6 Inches in Diameter, 2-Inch Face for Power. Speed 250 R.P.M. Weight 105 lbs. *Code—Fecal*... **23.00**

CHAMPION SELF-FEED POST DRILL
NO. 93½

Made with Ball Bearings



No. 93½ Champion Post Drill is the same as the No. 93, shown on opposite page, except that this Drill does not have double journal bearings, or bearings on each side of the gears.

It has two speeds.

Spindle has End Thrust Ball Bearings.

All Bearings are ground out of the solid metal.

No Babbitt used on this Drill.

The End Thrust Ball Bearings save 50 per cent. in power and are made from the highest grade of lathe-turned tool steel.

Has Automatic Self-Feed.

It has lathe-turned and slotted table.

Champion Drills are all machine jigged; therefore all parts are absolutely standard and interchangeable.

SPECIFICATIONS

Drills to the center of a 15-inch circle.

Drills from 0 to 1¼-inch hole.

Spindle 1⅛ inches in diameter; has up-and-down run of 3 inches.

Greatest distance from table to spindle, 10 inches. Height of drill, 46 inches.

Spindle bored like Champion "Patented" Never Slip Chuck to take in ½-inch Straight Shank Drill Bits. If especially ordered to take in ⅝-inch or ¾-inch.

Weight 115 lbs. *Code—February* **$20.00**

No. 93½P Drill, same as above, with Tight and Loose Pulleys, 6 Inches in Diameter, 2-Inch Face for Power. Speed 250 R.P.M. Weight 120 lbs. *Code—Feed* **$25.00**

CHAMPION SELF-FEED POST DRILL NO. 93

Made with Ball Bearings

No. 93 Champion Self-Feed Post Drill is a high grade up-to-date back-geared Drill, with double journal bearings to all gears.

It has two speeds.

Spindle has End Thrust Ball Bearings.

All Bearings are ground out of the solid metal.

No Babbitt used on this Drill.

The End Thrust Ball Bearings save 50 per cent. in power and are made from the highest grade of lathe-turned tool steel.

Has Automatic Self-Feed.

It has lathe-turned and slotted table.

Champion Drills are all machine jigged, therefore all parts are absolutely standard and interchangeable.

SPECIFICATIONS

Drills to the center of a 15-inch circle.

Drills from 0 to 1 ¼-inch hole.

Spindle 1 ⅛ inches in diameter; has up-and-down run of 3 inches.

Greatest distance from table to spindle, 10 inches. Height of drill, 46 inches.

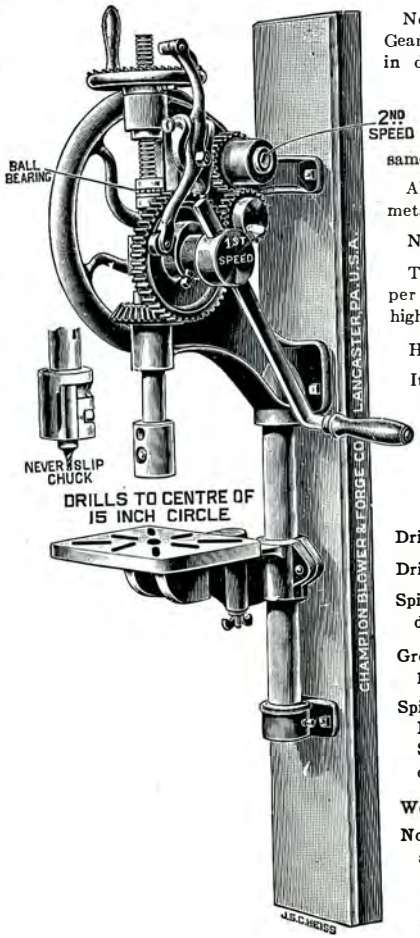
Spindle bored like Champion "Patented" Never Slip Chuck to take in ½-inch Straight Shank Drill Bits. If specially ordered to take in ⅝-inch or ¾-inch.

Weight 120 lbs. *Code—Fay*....**$21.50**

No. 93P Drill, same as above, with Tight and Loose Pulleys, 6 Inches in Diameter, 2-Inch Face for Power. Speed 250 R.P.M. Weight 125 lbs. *Code—Fealty*.....**$26.50**

CHAMPION SELF-FEED THREE-GEARED POST DRILL NO. 95

Made with Ball Bearings



No. 95 Champion Self-Feed Three-Geared Ball Bearing Post Drill is stocky in design. It has three gears to give second speed same turning direction of the crank as the first speed.

It has two speeds that turn the same direction.

All Bearings are ground out of the solid metal.

No Babbitt used on this Drill.

The End Thrust Ball Bearings save 50 per cent. in power and are made from the highest grade of lathe-turned tool steel.

Has Automatic Self-Feed.

It has lathe-turned and slotted table.

Champion Drills are all machine jigged, therefore all parts are absolutely standard and interchangeable.

SPECIFICATIONS

Drills to the center of a 15-inch circle.

Drills from 0 to 1½-inch hole.

Spindle 1⅛ inches in diameter; has up-and-down run of 3 inches.

Greatest distance from table to spindle, 10 inches. Height of drill, 46 inches.

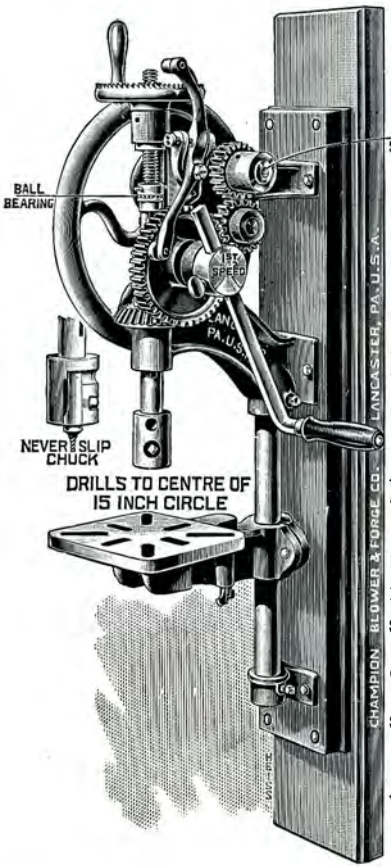
Spindle bored like Champion "Patented" Never Slip Chuck to take in ½-inch Straight Shank Drill Bits. If especially ordered to take in ⅝-inch or ¾-inch.

Weight 120 lbs. *Code—Feenland* . . **$23.00**

No. 95P Drill, same as above, with Tight and Loose Pulleys, 6 Inches in Diameter, 2-Inch Face for Power. Speed 250 R.P.M. Weight 125 lbs. *Code—Feetless* **$28.00**

CHAMPION SELF-FEED IRON BACK THREE-GEARED POST DRILL NO. 95½

Made with Ball Bearings


BALL BEARING
2ND SPEED
1ST SPEED
NEVER SLIP CHUCK
DRILLS TO CENTRE OF 15 INCH CIRCLE
CHAMPION BLOWER & FORGE CO. LANCASTER, PA. U.S.A.

No. 95½ Champion Self-Feed Ball Bearing, Iron Back, Three-Geared Post Drill is stocky in design, equipped with iron back, making it extremely rigid, and firm in connection with doing heavier work.

It has three gears to give the same turning of the crank to the second speed as the first.

It has two speeds that turn the same direction.

All bearings are ground out of the solid metal.

No babbitt used on this drill.

The End Thrust Ball Bearings save 50 per cent. in power and are made from the highest grade of lathe-turned tool steel.

Has automatic self-feed.

It has lathe-turned and slotted table.

Champion Drills are all machine jigged, therefore all parts are absolutely standard and interchangeable.

SPECIFICATIONS

Drills to the center of a 15-inch circle.

Drills from 0 to 1½-inch hole.

Spindle 1⅛-in. in diameter, has up-and-down run of 3 inches.

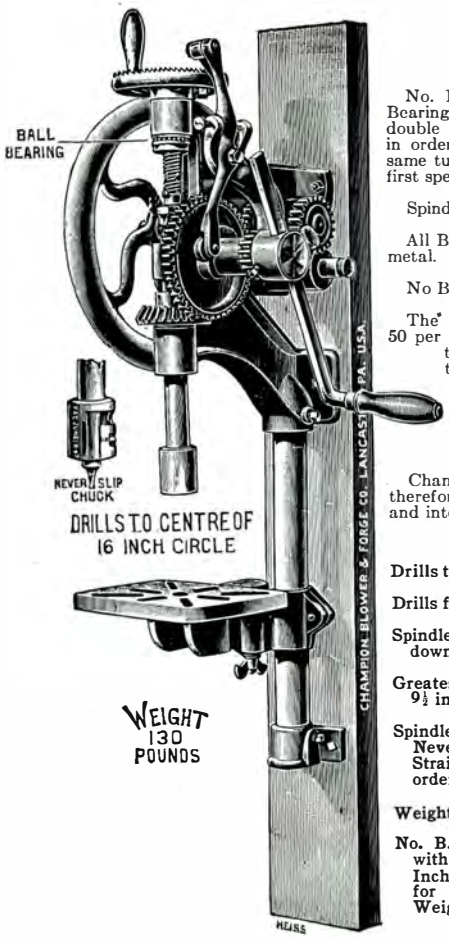
Greatest distance from table to spindle, 10 inches. Height of drill, 47 inches.

Spindle bored like Champion "Patented" Never Slip Chuck to take in ½-inch Straight Shank Drill Bits. If especially ordered to take in ⅝-inch or ¾-inch.

Weight 140 lbs. *Code—Feeb*..... **$30.00**

No. 95½P Drill, same as above, with Tight and Loose Pulleys, 6-Inch Diam., 2-Inch Face for Power. Speed 250 R.P.M. Weight 145 lbs. *Code—Feebuest*..... **35.00**

CHAMPION ORIGINAL BALL-BEARING SELF-FEED POST DRILL NO. B. B.


BALL BEARING
NEVER SLIP CHUCK
DRILLS TO CENTRE OF 16 INCH CIRCLE
WEIGHT 130 POUNDS
CHAMPION BLOWER & FORGE CO. LANCAST PA. U.S.A.

No. B. B. Champion "Original" Ball-Bearing Post Drill has three gears with double journal bearings to each gear, in order to give on the second speed the same turning direction of the crank as the first speed.

Spindle has End Thrust Ball Bearings.

All Bearings are ground out of the solid metal.

No Babbitt used on this Drill.

The End Thrust Ball Bearings save 50 per cent. in power and are made from the highest grade of lathe-turned tool steel.

Has Automatic Self-Feed.

It has lathe-turned and slotted table.

Champion Drills are all machine-jigged, therefore all parts are absolutely standard and interchangeable.

SPECIFICATIONS

Drills to the center of a 16-inch circle.

Drills from 0 to 1 ¼-inch hole.

Spindle 1⅛ inch in diameter; has up-and-down run of 3 inches.

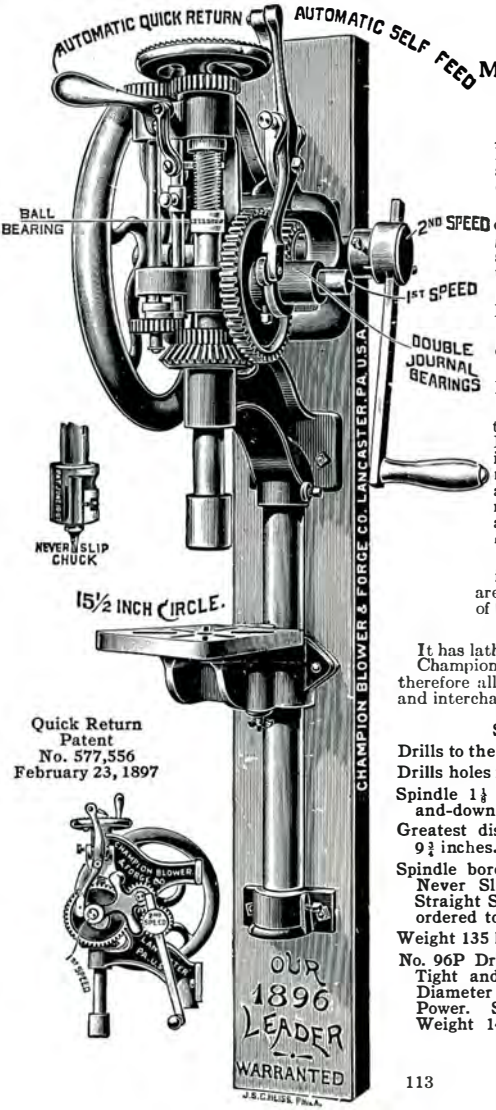
Greatest distance from table to spindle, 9½ inches. Height of drill, 46 inches.

Spindle bored like Champion "Patented" Never Slip Chuck to take in ¼-inch Straight Shank Drill Bits. If especially ordered to take in ⅜-inch or ½-inch.

Weight 120 lbs. *Code—Fear.....* **$24.00**

No. B. B.P Drill, same as above, with Tight and Loose Pulleys, 6 Inches in Diameter, 2-Inch Face for Power. Speed 250 R.P.M. Weight 125 lbs. *Code—Feast....* **29.00**

CHAMPION QUICK-RETURN SELF-FEED POST DRILL NO. 96



Quick Return Patent No. 577,556 February 23, 1897

Made with Ball Bearings

No. 96 Champion Automatic Quick-Return Self-Feed Post Drill stands without a rival in its class in the markets of today.

It has three back gears with double journal bearings to each gear, in order to give second speed same turning direction of the crank as the first.

Spindle has End Thrust Ball Bearings.

All Bearings are ground out of the solid metal.

No Babbitt used on this Drill.

The Quick-Return Lever is thrown into place while the Drill continues in motion, where it remains until the bit is raised out of the work and automatically stops, requiring no attention from the operator and is again ready for the next hole.

The End Thrust Ball Bearings save 50% in power and are made from the highest grade of lathe-turned tool steel.

Has Automatic Self-Feed.

It has lathe-turned and slotted table.

Champion Drills are all machine-jigged; therefore all parts are absolutely standard and interchangeable.

SPECIFICATIONS

Drills to the center of a 15½-inch circle.

Drills holes from 0 to 1⅛ inch.

Spindle 1⅛ inches in diameter; has up-and-down run of 3 inches.

Greatest distance from table to spindle, 9¾ inches. Height of drill, 46 inches.

Spindle bored like Champion "Patented" Never Slip Chuck to take in ½-inch Straight Shank Drill Bits. If especially ordered to take in ⅝-inch or ¾-inch.

Weight 135 lbs. *Code—Feather* **$30.00**

No. 96P Drill, same as above, with Tight and Loose Pulleys, 6-inch Diameter and 2-inch Face for Power. Speed 250 R.P.M. Weight 140 lbs. *Code—Feature.* **35.00**

CHAMPION QUICK-RETURN SELF-FEED POST DRILL NO. 94

Made with Ball Bearings

No. 94 Champion Quick-Return Automatic Self-Feed Post Drill is placed on the market as our first effort on a quick-return drill.

It is a substantially first class tool with a complete and independent quick-return attachment which must be lifted by hand to shift the quick-return to raise the bit out of the work.

Has back gears with double journal bearings to each gear.

Has two speeds.

Spindle has End Thrust Ball Bearings.

All Bearings are ground out of the solid metal.

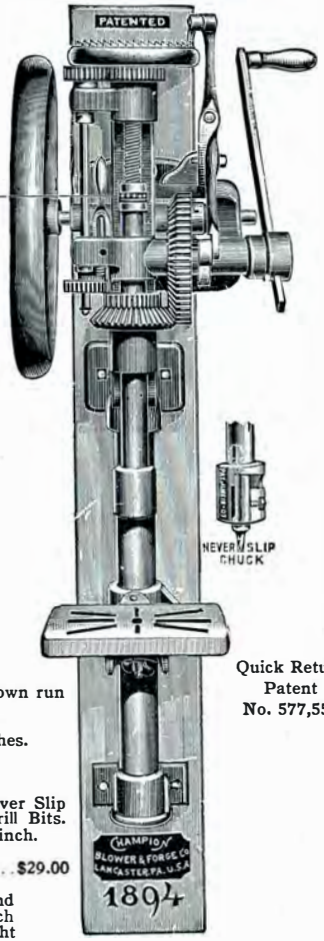
No Babbitt used on this Drill.

The End Thrust Ball Bearings save 50% in power and are made from the highest grade of lathe-turned tool steel.

Has Automatic Self-Feed.

It has lathe-turned and slotted table.

Champion Drills are all machine-jigged, therefore all parts are absolutely standard and interchangeable.



Quick Return Patent No. 577,556

SPECIFICATIONS

Drills to the center of a 15½-inch circle.

Drills holes from 0 to 1⅛ inches.

Spindle 1⅛ inches in diameter; has up-and-down run of 3 inches.

Greatest distance from table to spindle, 10 inches.

Height of drill, 46 inches.

Spindle bored like Champion "Patented" Never Slip Chuck to take in ½-inch Straight Shank Drill Bits. If especially ordered to take in ⅝-inch or $\frac{1}{64}$-inch.

Weight 130 lbs. *Code—Febrifurge*..... **$29.00**

No. 94P Drill, same as above with Tight and Loose Pulleys, 6 inches in Diameter and 2-inch Face for Power. Speed 250 R.P.M. Weight 135 lbs. *Code—Febricavate*..... **34.00**

CHAMPION SINGLE-GEARED SELF-FEED DRILL NO. 2½

No. 2½ Champion Single-Geared Upright Self-Feed Post Drill is so constructed that it is very strong and powerful and is capable of doing a large capacity of work.

The Fly-Wheel on the Upright Drill Spindle with 1½ revolutions to each turn of the crank makes it a drill highly appreciated where known.

The Automatic Self-Feed Wheel is entirely separate from the Hand-Feed Wheel and therefore makes both feeds convenient.

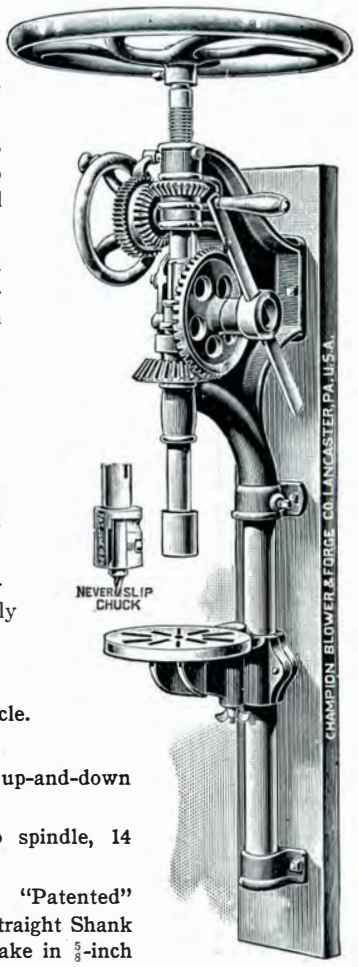
All Bearings are ground out of the solid metal.

No Babbitt used on this drill.

Has Automatic Self-Feed.

It has lathe-turned and slotted table.

Champion Drills are all machine-jigged, therefore all parts are absolutely standard and interchangeable.



SPECIFICATIONS

Drills to the center of a 14-inch circle.

Drills holes from 0 to 1 inch.

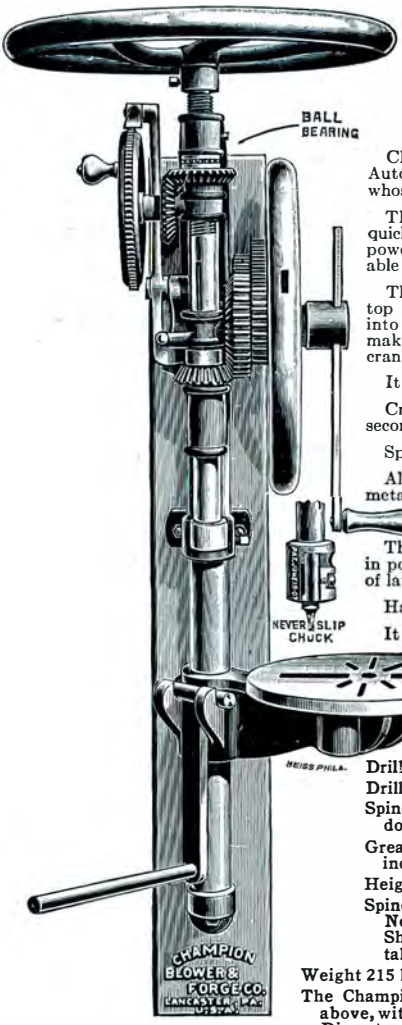
Spindle 1¼ inches in diameter; has up-and-down run of 5 inches.

Greatest distance from table to spindle, 14 inches. Height of drill, 54 inches.

Spindle bored like Champion "Patented" Never Slip Chuck to take in ½-inch Straight Shank Drill Bits. If especially ordered to take in ⅝-inch or 41/64-inch.

Weight 145 lbs. *Code—Federate*..... **$30.00**

CHAMPION BLACK DIAMOND SELF-FEED POST DRILL



Made with Ball Bearings

Champion Ball-Bearing Black Diamond Automatic Self-Feed Post Drill is a tool whose merit is worth looking into.

The Gearing is designed for easy and quick running, compounded for increasing power, making it a very powerful and desirable drill.

The side Fly Wheel in connection with the top Fly Wheel is very practical, when taken into consideration that both the Fly Wheels make two revolutions to each turn of the crank.

It has two speeds.

Crank turns same direction on first and second speed.

Spindle has End Thrust Ball Bearings.

All Bearings are ground out of the solid metal.

No Babbitt used on this Drill.

The End Thrust Ball Bearings save 50% in power and are made from the highest grade of lathe-turned tool steel.

Has Automatic Self-Feed.

It has lathe-turned and slotted table.

Champion Drills are all machine-jigged, therefore all parts are absolutely standard and interchangeable.

SPECIFICATIONS

Drills to the center of an 18-inch circle.

Drills holes from 0 to 1½ inches.

Spindle 1¼ inches in diameter; has up-and-down run of 4 inches.

Greatest distance from table to spindle, 16¼ inches.

Height of drill, 56 inches.

Spindle bored like Champion "Patented" Never Slip Chuck to take in ½-inch Straight Shank Drill Bits. If especially ordered to take in ⅝-inch or ¾-inch.

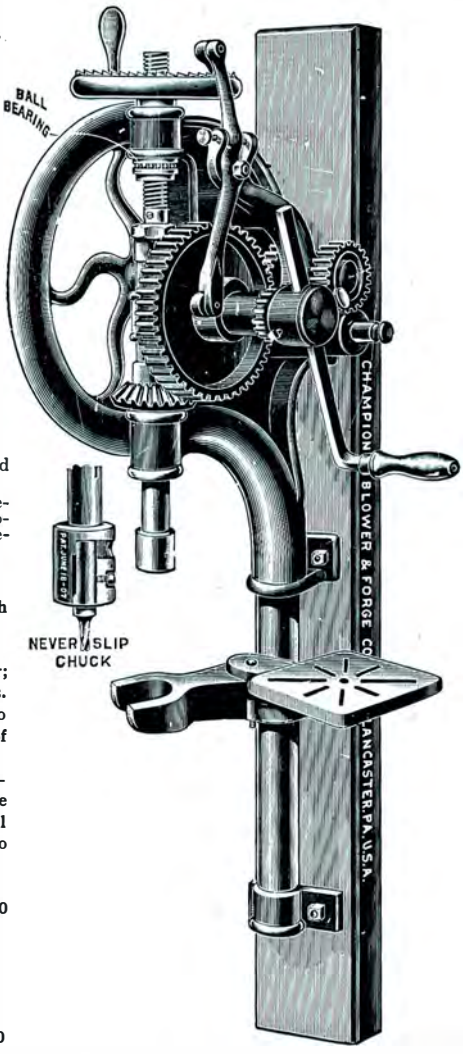
Weight 215 lbs. *Code—Fedegosa*..... **$40.00**

The Champion Black Diamond Drill, same as above, with Tight and Loose Pulleys, 6 Inches Diameter, 2-Inch Face for Power. Speed 105 R.P.M. Weight 220 lbs. *Code—Fecundat*.. **46.00**

Extra for Wheel Holder Attachment..... **3.00**

CHAMPION SELF-FEED POST DRILL NO. 4

Made with Ball Bearings



No. 4 Champion Three-Geared Post Drill has three back gears with double journal bearings to each gear to give the second speed same turning direction of the crank as the first.

This is a high-grade heavy-built tool with large swing at a moderate price.

It has two speeds.

Spindle has End Thrust Ball Bearings.

All Bearings ground out of the solid metal.

No Babbitt used on this drill.

The End Thrust Ball Bearings save 50% in power and are made from the highest grade of lathe-turned tool steel.

It has Automatic Self-Feed.

Has lathe-turned and slotted table.

Champion Drills are all machine-jigged, therefore all parts are absolutely standard and interchangeable.

SPECIFICATIONS

Drills to the center of an 18-inch circle.

Drills from 0 to 1½ inches.

Spindle 1¼ inches in diameter; has up-and-down run of 5 inches.

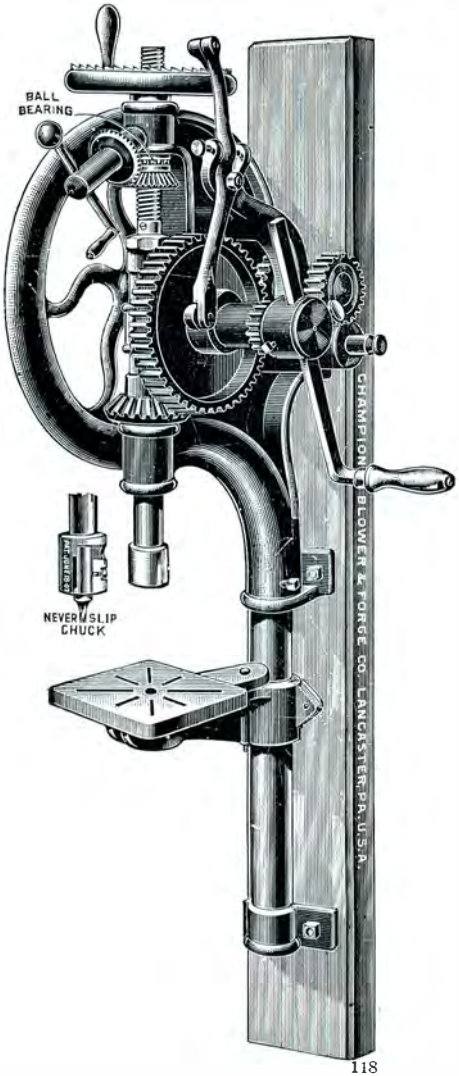
Greatest distance from table to spindle, 15 inches. Height of drill, 54 inches.

Spindle bored like Champion "Patented" Never Slip Chuck to take in ½-inch Straight Shank Drill Bits. If especially ordered to take in ⅝-inch or 41/64-inch.

Weight 200 lbs. *Code—*
Fenusculis **$32.00**

No. 4P Drill, same as above, with Tight and Loose Pulleys, 6 Inches in Diameter, 2-Inch Face for Power. Speed 290 R.P.M. Weight 205 lbs. *Code—Fenuscula* **37.00**

CHAMPION SELF-FEED POST DRILL
NO. 4½



Made with Ball Bearings

No. 4½ Champion Three Geared Upright Post Drill is in every respect the same as No. 4 shown on page 117, except that Drill has **Quick-Return and Hand-Feed Handle.** Otherwise it is precisely the same in design, dimensions and construction as the No. 4.

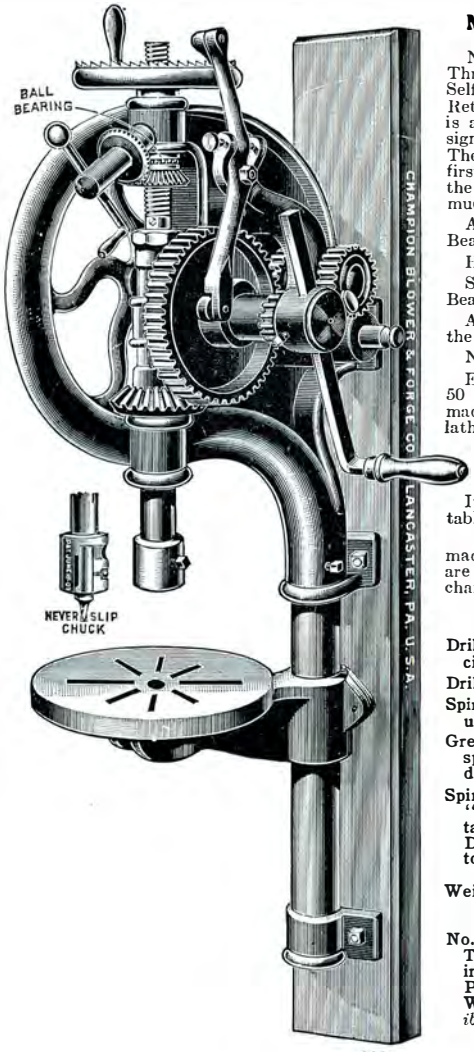
This is a very heavy, large swing, quick-acting Drill and worthy of special consideration.

Carefully read page 117 for full description of this Drill.

Weight 205 lbs. *Code—Fenriswolf*.....**$38.00**

No. 4½P Drill, same as above with Tight and Loose Pulleys, 6 Inches in Diameter, 2-Inch Face for Power. Speed 290 R.P.M. Weight 210 lbs. *Code—Fenowed* **43.00**

CHAMPION SELF-FEED POST DRILL NO. 5



Made with Ball Bearings

No. 5 Champion 20-inch Swing Three-Geared Ball-Bearing Upright Self-Feed Post Drill with Quick-Return and Hand-Feed Handle is a heavy and practical tool designed for a great variety of work. The 20-inch Swing makes it a first-class medium-priced Drill, as the large swing enables work of much larger range to be drilled.

All Gears have Double Journal Bearings.

Has two speeds.

Spindle has End Thrust Ball Bearings.

All Bearings are ground out of the solid metal.

No Babbitt used on this Drill.

End Thrust Ball Bearings save 50 per cent. in power and are made from the highest grade of lathe-turned tool steel.

Has Automatic Self-Feed with Quick-Return and Hand-Feed Handle.

It has lathe-turned and slotted table.

Champion Drills are all machine-jigged, therefore all parts are absolutely standard and interchangeable.

SPECIFICATIONS

Drills to the center of a 20-inch circle.

Drills holes from 0 to 1½ inches.

Spindle 1½ inches in diameter; has up-and-down run of 5 inches.

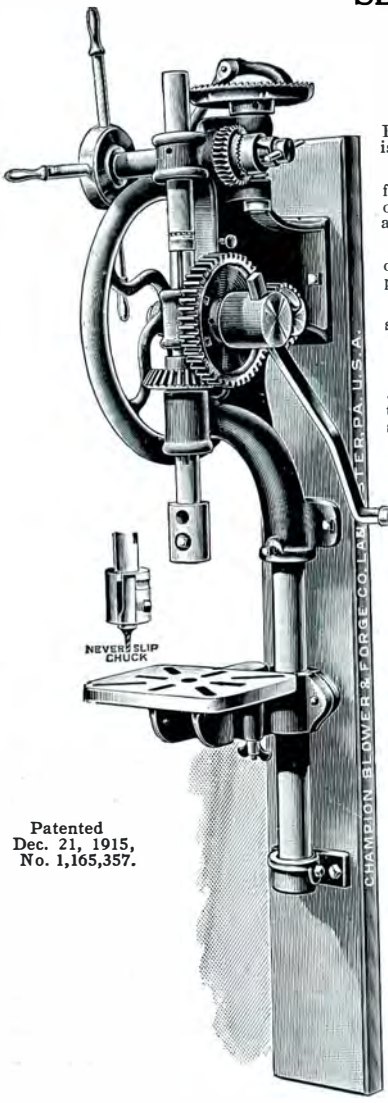
Greatest distance from table to spindle, 16 inches. Height of drill, 55 inches.

Spindle bored like Champion "Patented" Never Slip Chuck to take in ½-inch Straight Shank Drill Bits. If especially ordered to take ⅝-inch or ¾-inch.

Weight 250 lbs. *Code—Fenonil* **$46.00**

No. 5P Drill, same as above, with Tight and Loose Pulleys, 6 Inches in Diameter, 2-Inch Face for Power. Speed 290 R.P.M. Weight 260 lbs. *Code—Fenoribus*..... **51.00**

CHAMPION HAND-FEED AND QUICK-RETURN SELF-FEED POST DRILL NO. 97



Patented
Dec. 21, 1915,
No. 1,165,357.

Made with Ball Bearings

No. 97 Champion Self-Feed and Hand-Feed Quick-Return Drill on both speeds is a very substantially built Drill.

The Propeller wheel hand feed and self feed are independent of each other and for quick work the hand feed is unsurpassed and acts as the quick return for the Drill Bit.

It has quick-acting features and points of simplicity never found on a drill of this price before.

A capital drill for garages and battery service stations.

It has End Thrust Ball Bearings.

The End Thrust Ball Bearings save 50 per cent. in power and are made from the highest grade of lathe-turned tool steel.

It has three gears, giving second speed same turning direction as first.

It has lathe-turned and slotted table.

All Bearings are ground out of the solid metal.

No Babbitt used on this Drill.

Champion Drills are all machine-jigged, therefore all parts are absolutely standard and interchangeable.

SPECIFICATIONS

Drills to the center of 16½-inch circle.

Drills holes from 0 to 1¼ inches.

Spindle 1⅛ inches in diameter; has up-and-down run of 5½ inches.

Greatest distance from table to spindle, 12½ inches. Height of drill, 50 inches.

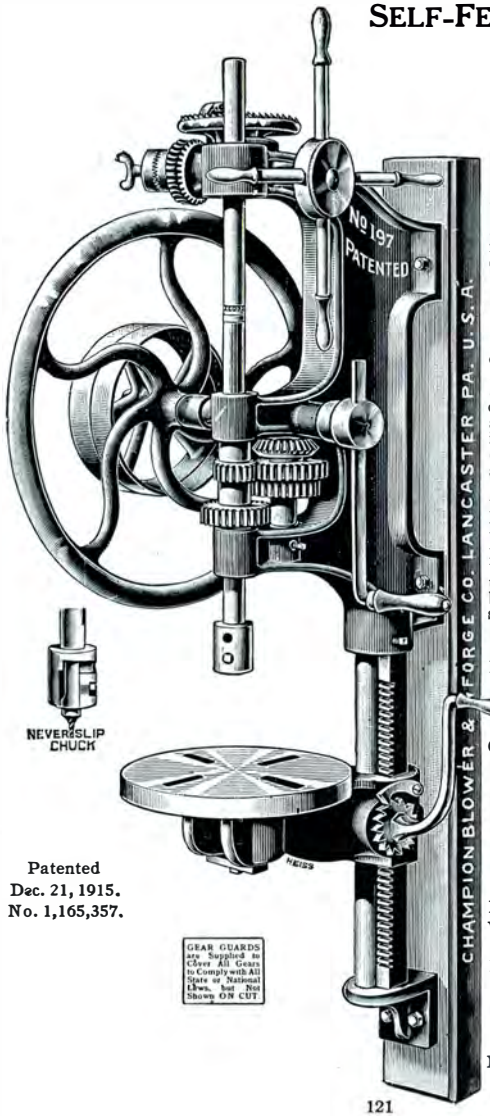
Spindle bored like Champion "Patented" Never Slip Chuck to take in ½-inch Straight Shank Drill Bits. If especially ordered to take in ⅝-inch or ¾-inch.

Weight 170 lbs. *Code—Fease*..... **$32.50**

No. 97P Drill, same as above with Tight and Loose Pulleys, 6 Inches in Diameter, and 2-Inch Face for Power. Speed 250 R.P.M. Weight 175 lbs. *Code—Feabor* .. **37.50**

CHAMPION HAND-FEED AND QUICK-RETURN SELF-FEED POST DRILL NO. 197

Made with Cut Gears and Ball Bearings


No 197
PATENTED
CHAMPION BLOWER & FORGE CO. LANCASTER PA. U.S.A.
NEVERSLIP CHUCK
GEAR GUARDS are Supplied to Cover All Gears to Comply with All State or National Laws, but Not Shown ON CUT

Patented
Dec. 21, 1915.
No. 1,165,357.

No. 197 Champion Self-Feed and Hand-Feed, Quick-Return Drill has quick-acting features, and points of simplicity never found on a drill before. It is equipped with back gears cut throughout, and ball bearings, making a very substantially built drill. The Propeller Wheel Hand-Feed and Self-Feed are independent of each other. For quick work the Hand-Feed is unsurpassed. It acts as quick return for the drill bit. It has two speeds and to change from slow to fast is accomplished by sliding the cut gears. The Table is raised and lowered by a rack which is quick in action, and can be turned out of the way. It has End Thrust Ball Bearings, which save 50 per cent. in power, and are made of lathe-turned tool steel. It has lathe-turned and slotted table. All bearings are ground out of the solid metal.

SPECIFICATIONS

Drills to the center of a 20-inch circle.

Spindle 1¼ inches in diameter; has up-and-down run of 7 inches.

Greatest distance from table to spindle, 17 inches. Height of drill, 68 inches.

Spindle bored like Champion "Patented" Never Slip Chuck to take ½-inch Straight Shank Bits. If specially ordered will be bored for ⅝-inch or ¾-inch Straight Shank Bits.

Drills holes up to 1½ inches.

Weight 375 lbs. *Code—Fim* **$70.00**

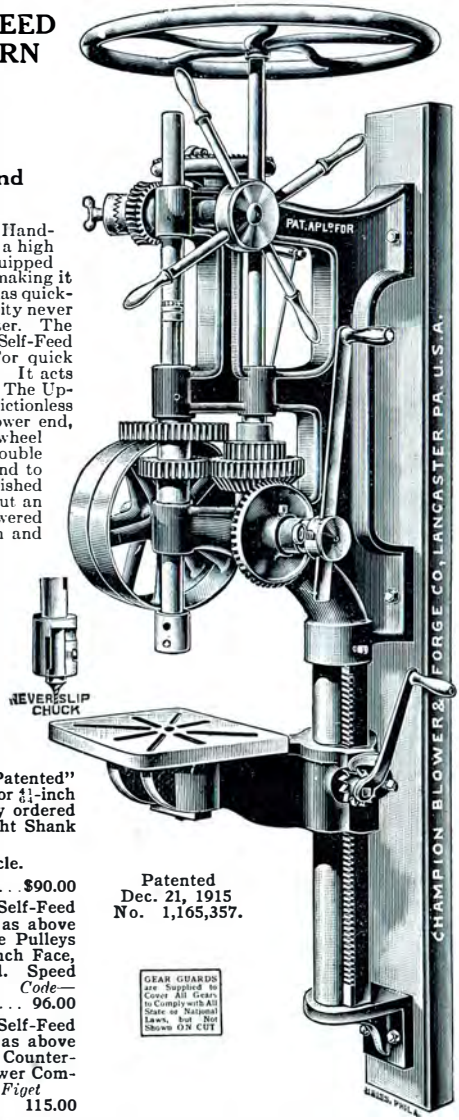
No. 197P Drill, same as above, with Tight and Loose Pulleys, 11 Inches in Diameter, 2½-Inch Face. Speed 80 R.P.M. Weight 400 lbs. *Code—Fie*..... **76.00**

Extra for Wheel Holder Attachment..... **3.00**

CHAMPION HAND-FEED AND QUICK-RETURN SELF-FEED POST DRILL NO. 297

Made with Cut Gears and Ball Bearings

No. 297 Champion Self-Feed and Hand-Feed Quick-Return Drill represents a high grade, large and powerful drill, equipped with both self-feed and hand feed, making it a very substantially built drill. It has quick-acting features and points of simplicity never found on a drill of this character. The Propeller Wheel Hand-Feed and Self-Feed are independent of each other. For quick work the hand feed is unsurpassed. It acts as a quick return for the drill bit. The Upright Fly Wheel Shaft running on frictionless End Thrust Ball Bearings on its lower end, and is supplied with a heavy fly wheel for keeping up momentum. It has double Back Cut Gears with two speeds, and to change from fast to slow is accomplished by sliding the cut gears, requiring but an instant. The Table is raised and lowered by a Rack which is quick in action and can be turned back out of the way. It has End Thrust Ball Bearings which save 50 per cent. in power, and made of high grade lathe-turned tool steel. It has lathe-turned and slotted table.



SPECIFICATIONS

Spindle 1¼ inches in diameter has up-and-down run of 9 inches. Drills holes up to 1½ inches.

Greatest distance from table to spindle, 19 inches. Height of drill, 72 inches.

Spindle bored like Champion "Patented" Never Slip Chuck to take ⅝-inch or $\frac{41}{64}$-inch Straight Shank Bits. If specially ordered will be bored for ½-inch Straight Shank Bits.

Drills to the center of a 24-inch circle.

Weight 410 lbs. *Code—Fide*..... **$90.00**

No. 297P Champion "Patented" Self-Feed and Propeller Hand-Feed Drill, as above described, with Tight and Loose Pulleys 11 inches in Diameter and 2½-inch Face, for Hand and Power Combined. Speed 80 R.P.M. Weight 435 lbs. *Code—Fibit*..... **96.00**

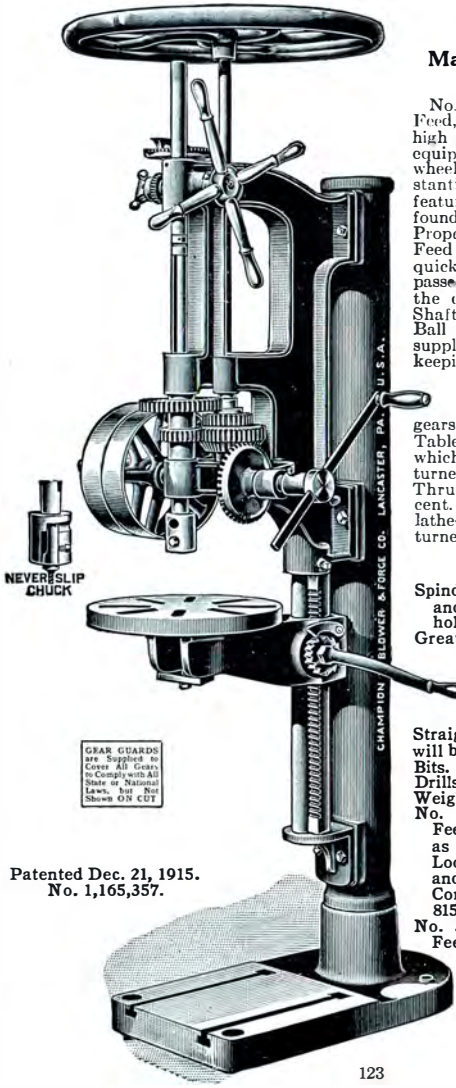
No. 297CP Champion "Patented" Self-Feed and Propeller Hand-Feed Drill, as above described, with Cone Pulley and Countershaft Complete for Hand and Power Combined. Weight 510 lbs. *Code—Figet* **115.00**

Extra for Wheel Holder Attachment... 3.00

Patented Dec. 21, 1915 No. 1,165,357.

GEAR GUARDS are Supplied to Cover All Gears to Comply with All State or National Laws, but Not Shown ON CUT

CHAMPION HAND-FEED AND QUICK-RETURN SELF-FEED UPRIGHT DRILL NO. 397


NEVER SLIP CHUCK
GEAR GUARDS are Supplied to Cover All Gears to Comply with All State or National Laws, but Not Shown ON CUT
BLOWER & FORGE CO. LANCASTER, PA. U.S.A.
CHAMPION

Patented Dec. 21, 1915.
No. 1,165,357.

Made with Cut Gears and Ball Bearings

No. 397 Champion Self-Feed and Hand-Feed, Quick-Return Drill represents a high grade, large and powerful drill, equipped with both self-feed and propeller wheel hand feed, making it a very substantially built drill. It has quick-acting features and points of simplicity never found on a drill of this character. The Propeller Wheel Hand-Feed and Self-Feed are independent of each other. For quick work the hand feed is unsurpassed. It acts as a quick return for the drill bit. The Upright Fly Wheel Shaft running on frictionless End Thrust Ball Bearings on its lower end, and is supplied with a heavy fly wheel for keeping up momentum. It has double Back Cut Gears with two speeds, and to change from fast to slow is accomplished by sliding the cut gears, requiring but an instant. The Table is raised and lowered by a Rack which is quick in action and can be turned back out of the way. It has End Thrust Ball Bearings which save 50 per cent. in power, and made of high grade lathe-turned tool steel. It has lathe-turned and slotted table.

SPECIFICATIONS

Spindle 1¼ inches in diameter, has up-and-down run of 9 inches. Drills holes up to 1½ inches.

Greatest distance from table to spindle, 19 inches. Height of drill, 72 inches.

Spindle bored like Champion "Patented" Never Slip Chuck to take ⅝-inch or 41/64-inch Straight Shank Bits. If specially ordered will be bored for ½-inch Straight Shank Bits.

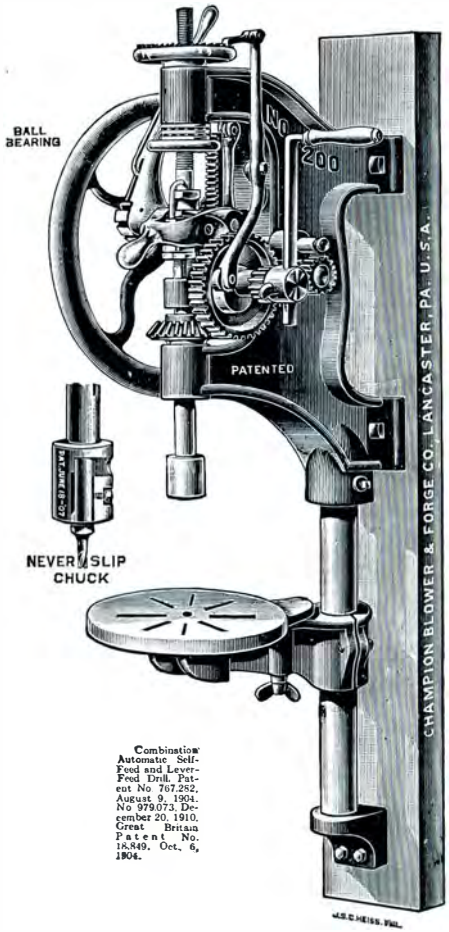
Drills to the center of a 24-inch circle. Weight 790 lbs. *Code—Fride*... **$115.00**

No. 397 Champion "Patented" Self-Feed and Propeller Hand-Feed Drill, as above Described, with Tight and Loose Pulleys 11 inches in diameter and 2½-inch face, for Hand and Power Combined. Speed 80 R.P.M. Weight 815 lbs. *Code—Fribit*..... **124.00**

No. 397 Champion "Patented" Self-Feed and Propeller Hand-Feed Quick-Return Upright Drill, same as above, with Cone Pulley and Countershaft Complete for Hand and Power Combined. Weight 890 lbs. *Code Frigete*..... **140.00**

Extra for Wheel Holder Attachment..... **3.00**

CHAMPION COMBINATION AUTOMATIC SELF-FEED AND DOUBLE COMPOUND LEVER-FEED POST DRILL NO. 200



Combination Automatic Self-Feed and Lever-Feed Drill. Patent No. 767,282, August 9, 1904. No. 979,073, December 20, 1910. Great Britain Patent No. 18,849, Oct. 6, 1904.

Trade Mark Registered Oct. 30, 1906, No. 56,952.

Made with Ball Bearings

No. 200 Champion "Patented" Combination Automatic Self-Feed and Double Compound Lever-Feed Post Drill has the Double Compound Lever Feed, which produces 80 per cent. more pressure at the point of the Drill Bit than any other drill manufactured. The "Patented" Automatic Self-Feed and Double Compound Link and Rack Lever-Feed are both independent of each other and are changed from one to the other in the fraction of a second. With either feed, the Drill Spindle has instantaneous return of the Drill Bit out of the hole drilled and again instantaneous return on the material for the next hole. This Drill Spindle and Bit are positively always raised up or down while using either feed, by the use of the quick acting Lever. It has two speeds with three gears, in order to give the second speed same turning direction of the crank as the first speed. All end friction on this Drill is taken from the Drill Spindle by the use of Ball Bearings, making it a very light and quiet running tool. The Lever makes it especially convenient for wood boring.

SPECIFICATIONS

Drills to the center of a 16-inch circle.

Spindle 1 ¼ inches in diameter; has an up-and-down run of 4 inches.

Greatest distance from table to spindle, 11 inches. Height of drill, 51 inches.

Spindle bored like Never Slip Chuck to take in ½-inch Straight Shank Drill Bits. If specially ordered will be bored for ⅜-inch or $\frac{4}{8}$-inch.

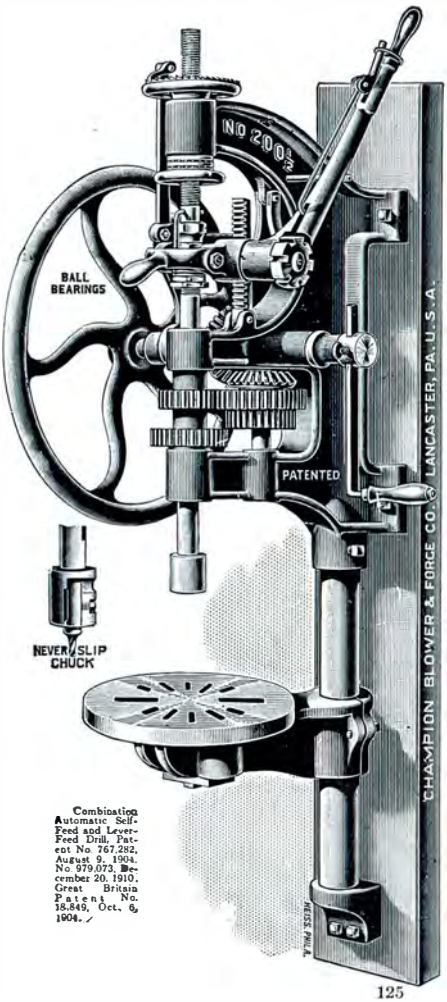
Drills holes up to 1 ¼ inches.

Weight 200 lbs. *Code—Faldfee* **$45.00**

No. 200P Drill, same as above, with Tight and Loose Pulleys, 6 Inches in Diameter and 2-Inch Face for Power. Speed 250 R.P.M. Weight 205 lbs. *Code—Faldigilia* **. 50.00**

CHAMPION COMBINATION AUTOMATIC SELF-FEED AND DOUBLE COMPOUND LEVER-FEED POST DRILL NO. 200½

Made with Ball Bearings



Combination Automatic Self-Feed and Lever-Feed Drill, Patent No. 767,282, August 9, 1904. No. 979,073, December 20, 1910. Great Britain Patent No. 18,849, Oct. 6, 1904.

No. 200½ Champion "Patented" Combination Automatic Self-Feed and Double Compound Lever-Feed Post Drill is the most powerful medium priced drill built. This "Patented" Double Compound Lever Feed produces at least 80 per cent. more pressure at the point of the Drill Bit than any other Power or Hand Drill manufactured not enjoying this invention. The "Patented" Automatic Self-Feed and Double Compound Link and Rack Lever-Feed are both independent of each other and are changed from one to the other in the fraction of a second. With either feed, the Drill Spindle has instantaneous return of the Drill Bit out of the hole drilled and again instantaneous return on the material for the next hole. This Drill Spindle and Bit is positively always raised up or down while using either feed, by the use of the quick acting Lever. It has two speeds; to change from slow to fast speed or heavy to light work is accomplished by sliding the Gears and requires but an instant. All end friction on this Drill is taken from the Drill Spindle by the use of Ball Bearings, making it a very light and quiet running tool, especially adapted for Blacksmith Shops, Carriage and Wagon Builders' shops, and Railroad shops and is furnished for either Hand, or Hand and Power combined. The Lever makes it especially convenient for wood boring.

SPECIFICATIONS

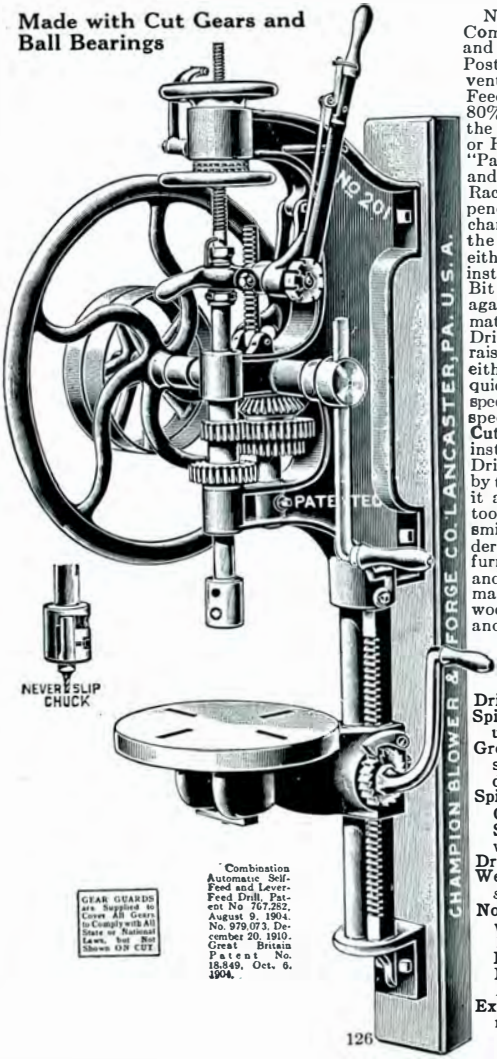
Drills to the center of an 18-inch circle.
Spindle 1¼ inches in diameter; has up-and-down run of 5½ inches.
Greatest distance between table and spindle, 12 inches. Height of drill, 55 inches.
Spindle bored like Never Slip Chuck to take in ½-inch Straight Shank Bits. If especially ordered will be bored for ⅝-inch or 41/64-inch.
Drills holes up to 1½ inches.

Weight 260 lbs. *Code—Falucha* **$54.00**

No. 200½P Drill, same as above, with Tight and Loose Pulleys, 11 In. in Diam., and 2½-Inch Face for Power. Speed 100 R.P.M. Weight 285 lbs. *Code—Falcada*..... **62.00**

CHAMPION COMBINATION AUTOMATIC SELF-FEED AND DOUBLE COMPOUND LEVER-FEED POST DRILL
NO. 201

Made with Cut Gears and Ball Bearings



GEAR GUARDS are Supplied to Cover All Gears to Comply with All State or National Laws, but Not Shown ON CUT.

*Combination Automatic Self-Feed and Lever-Feed Drill. Patent No 767,282, August 9, 1904. No. 979,073, December 20, 1910. Great Britain Patent No. 18,849, Oct. 6, 1904.

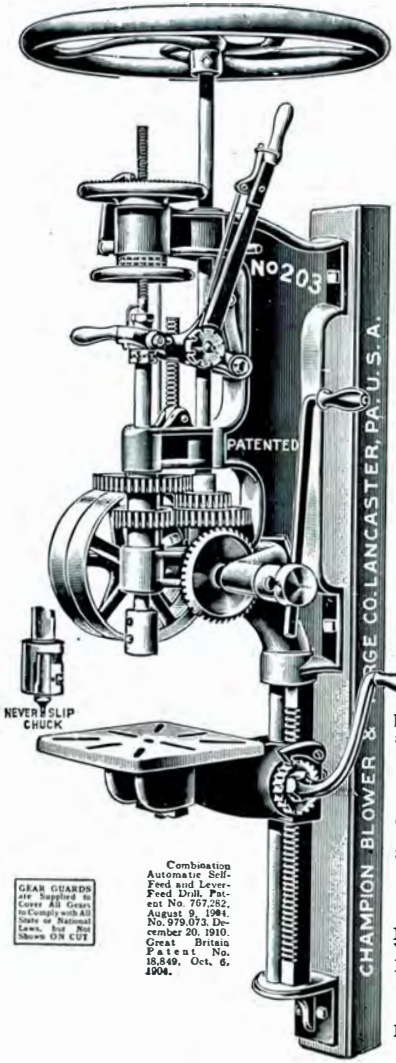
No. 201 Champion "Patented" Combination Automatic Self-Feed and Double Compound Lever-Feed Post Drill represents the latest invention in a high pressure Lever-Feed Drill and produces at least 80% more pressure at the point of the Drill Bit than any other Power or Hand Drill manufactured. The "Patented" Automatic Self-Feed and Double Compound Link and Rack Lever-Feed are both independent of each other and are changed from one to the other in the fraction of a second. With either feed, the Drill Spindle has instantaneous return of the Drill Bit out of the hole drilled and again instantaneous return on the material for the next hole. This Drill Spindle and Bit is always raised up or down while using either feed, by the use of the quick-acting Lever. It has two speeds; to change from slow to fast speed is accomplished by sliding Cut Gears and requires but an instant. All end friction on this Drill is taken from the Drill Spindle by the use of Ball Bearings, making it a very light and quiet running tool, especially adapted for Blacksmith's, Carriage and Wagon Builders' and Railroad Shops and is furnished for either hand, or hand and power combined. The Lever makes it especially convenient for wood boring. The table is raised and lowered by a rack which is quick in action and can be turned back out of the way.

SPECIFICATIONS

Drills to center of 21-inch circle.
Spindle 1¼ inches diameter; has up-and-down run of 5½ inches.
Greatest distance from table to spindle, 17 inches. Height of drill, 68 inches.
Spindle bored like Never Slip Chuck to take in ½-inch Straight Shank Bits. If specially ordered will be bored for ⅝-inch or 41/64-inch.
Drills holes up to 1½ inches.
Weight 415 lbs. *Code—Faldstool*..... **$72.00**
No. 201P Drill, same as above, with Tight and Loose Pulleys, 11 Inches in Diameter, 2½-Inch Face for Power. Speed 100 R.P.M. Weight 440 lbs. *Code—Falgename*..... **80.00**
Extra for Wheel Holder Attachment..... **3.00**

CHAMPION COMBINATION AUTOMATIC SELF-FEED AND DOUBLE COMPOUND LEVER-FEED POST DRILL NO. 203

Made with Cut Gears and Ball Bearings



GEAR GUARDS are Supplied to Cover All Gears to Comply with All State or National Laws, but Not Shown ON CUT

Combination Automatic Self-Feed and Lever-Feed Drill. Patent No. 767,282, August 9, 1904. No. 979,073. December 20, 1910. Great Britain Patent No. 18,849, Oct. 6, 1904.

No. 203 Champion "Patented" Combination Automatic Self-Feed and Double Compound Lever-Feed Post Drill represents the latest invention in a High Power Lever-Feed Drill and produces at least 80% more pressure at the point of the Drill Bit than any other Power or Hand and Power Drill manufactured. The Champion "Patented" Automatic Self-Feed and Double Compound Lever-Feed are both independent of each other, and are changed from one to the other in the fraction of a second. With either Lever-Feed or Automatic Self-Feed, the Drill Spindle has instantaneous return of the Drill Bit out of the hole drilled and again instantaneously replacing the bit on the material for drilling the next hole, thus enabling the operator to increase production three fold. The Upright Fly-Wheel Shaft running on frictionless end **Thrust Ball Bearings** on its lower end and is supplied with a heavy Fly Wheel for keeping up momentum. It has Double Back Cut Gears with two speeds. To change from slow to fast speed is accomplished by sliding the cut gears and requires but an instant. This Drill represents in its entire construction a powerful Tool, easy of operation with finest workmanship, making it a very practical Drill for Blacksmiths, Carriage and Wagon Builders, Garages, Railroad and Machine shops or any place where a strictly high-grade Drill is wanted. The Lever makes it especially convenient for Wood boring. The Table is raised and lowered by a Rack which is quick in action and can be turned back out of the way.

SPECIFICATIONS

Spindle 1¼ inches in diameter; has up-and-down run of 5½ inches; Drills holes up to 1¼ inches.

Greatest distance from table to spindle, 19 inches. Height of drill, 72 inches.

Spindle bored like Champion "Patented" Never Slip Chuck to take ⅝-inch or 21/32-inch Straight Shank Bits. If specially ordered will be bored for ½-inch Straight Shank Bits.

Drills to center of 21-inch circle.

Weight 445 lbs. *Code—Falisca* **$90.00**

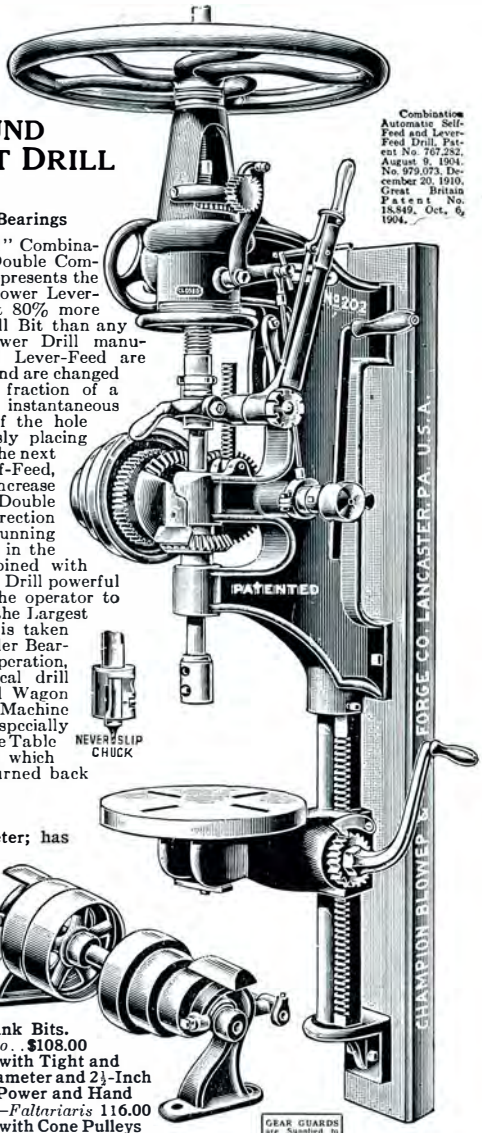
No. 203P Drill, same as above, with Tight and Loose Pulleys, 11 Inches in Diameter and 2½-Inch Face for Power. Speed 80 R. P.M., Weight 470 lbs. *Code—Falke* **98.00**

No. 203CP Drill, same as above, with Cone Pulley and Cone Countershaft for Power, Weight 545 lbs. *Code—Faltarian* **117.00**

Extra for Wheel Holder Attachment 3.00

CHAMPION COMBINATION AUTOMATIC SELF-FEED AND DOUBLE COMPOUND LEVER-FEED POST DRILL NO. 202

Made with Cut Gears and Ball Bearings



Combination Automatic Self-Feed and Lever-Feed Drill, Patent No. 767,282, August 9, 1904. No. 979,073, December 20, 1910, Great Britain Patent No. 18,849, Oct. 6, 1904.

No. 202 Champion "Patented" Combination Automatic Self-Feed and Double Compound Lever-Feed Post Drill represents the greatest invention in a high-power Lever-Feed Drill and produces at least 80% more pressure at the point of the Drill Bit than any other power, or hand and power Drill manufactured. The Self-Feed and Lever-Feed are both independent of each other and are changed from one to the other in the fraction of a second. The Drill Spindle has instantaneous return of the Drill Bit out of the hole drilled and again instantaneously placing Bit on the material for drilling the next hole with either the Lever or Self-Feed, thus enabling the operator to increase the production three fold. The Double Back Cut Gears run the same direction as the crank turns, giving the running of the drill the benefit gained in the momentum of the gears, combined with the heavy Fly-Wheel, gives the Drill powerful momentum; therefore enables the operator to drill holes from the Smallest to the Largest with ease. All spindle friction is taken from this drill by the use of Roller Bearings, therefore giving it ease of operation, which makes it a very practical drill for Blacksmiths, Carriage and Wagon Builders, Garages, Railroad and Machine Shops. The Lever makes it especially convenient for Wood Boring. The Table is raised and lowered by a rack which is quick in action and can be turned back out of the way.

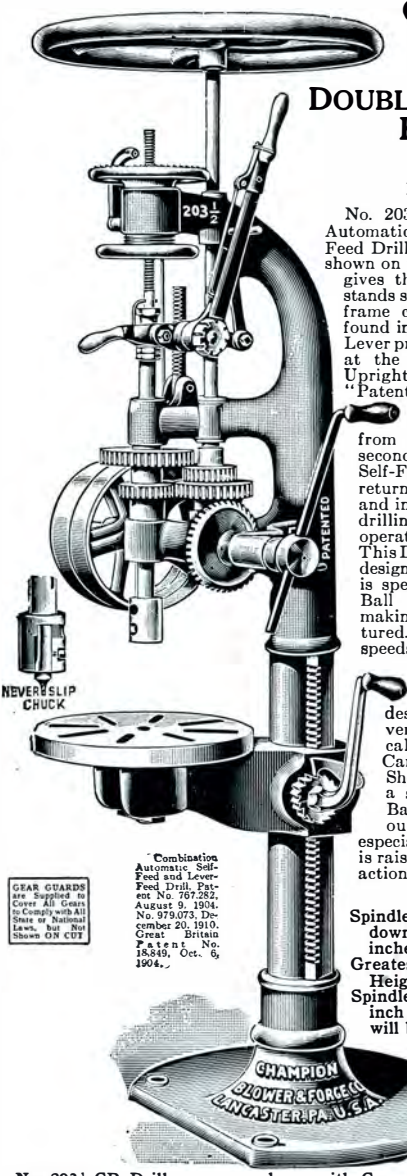
SPECIFICATIONS

Spindle is 1¼ inches in diameter; has up-and-down run of 6 inches.
Drills holes up to 1½ inches.
Drills to center of 22-inch circle.
Greatest distance from table to spindle, 20 inches. Height of drill, 95 inches.
Spindle bored like Never Slip Chuck to take 41/64-inch Straight Shank Bits. If specially ordered will be bored for ½-inch Straight Shank Bits.
Weight 500 lbs. *Code—Falhado* . . **$108.00**
No. 202P Drill, same as above, with Tight and Loose Pulleys, 11 Inches in Diameter and 2½-Inch Face. Speed 80 R.P.M. For Power and Hand Combined, Wt. 525 lbs. *Code—Faltariaris* **116.00**
No. 202CP Drill, same as above, with Cone Pulleys and Countershaft, Complete for Power and Hand Combined, Wt. 600 lbs. *Code—Faliekant* **135.00**
Extra for Wheel Holder Attachment 3.00

GEAR GUARDS are Supplied to Cover All Gears to Comply with All State or National Laws, but Not Shown ON CUT

CHAMPION COMBINATION AUTOMATIC SELF-FEED AND DOUBLE COMPOUND LEVER-FEED UPRIGHT DRILL NO. 203½

Made with Cut Gears and Ball Bearings



GEAR GUARDS are Supplied to Cover All Gears to Comply with All State or National Laws, but Not Shown ON CUT

Combination Automatic Self-Feed and Lever-Feed Drill. Patent No. 767,282, August 9, 1904. No. 979,073, December 20, 1910. Great Britain Patent No. 18,849, Oct. 6, 1904.

No. 203½ Champion "Patented" Combination Automatic Self-Feed and Double Compound Lever-Feed Drill is the same as the "Famous" 203 Drill shown on page 127; the only difference is this Drill gives the mechanic the benefit of a Drill that stands solid on its own base with the column and frame cast in one piece, insuring rigidity only found in drills constructed in that manner. The Lever produces at least 80 per cent. more pressure at the point of the Drill Bit than any other Upright Drill manufactured. The Champion "Patented" Automatic Self-Feed and Double Compound Lever Feed are both independent of each other and are changed from one to the other in the fraction of a second. With either Lever-Feed or Automatic Self-Feed the Drill Spindle has instantaneous return of the Drill Bit out of the hole drilled and instantaneous return on the material for drilling the next hole, thus enabling the operator to increase the production three fold. This Drill is supplied with a heavy and specially designed Fly-Wheel to an Upright Shaft that is specially fitted with frictionless end Thrust Ball Bearings for keeping up momentum, making it the lightest running Drill manufactured. It has double Back Cut Gears with two speeds. To change from slow to fast speed, or heavy to light work is accomplished by sliding the cut gears in an instant. This Drill represents in its entire design, construction and workmanship a very powerful tool, making it a very practical Drill for Garages, Blacksmith Shops, Carriage and Wagon Builders, Railroad Shops, Machine Shops, or any place where a strictly high grade Drill is wanted. No Babbitt is used, the Bearings all being ground out of solid metal. The Lever makes it especially convenient for wood boring. Table is raised and lowered by a rack which is quick in action and can be turned back out of the way.

SPECIFICATIONS

Spindle is 1¼ inches in diameter; has up-and-down run of 5¼ inches; Drills holes up to 1½ inches. Drills to center of 21-inch circle. Greatest distance from table to spindle, 20 inches. Height of drill, 80 inches. Spindle bored like Never Slip Chuck to take 4⅛-inch Straight Shank Bits. If specially ordered will be bored for ½-inch Straight Shank Bits. Weight 625 lbs. *Code—Faltasinha* **.....$126.00**

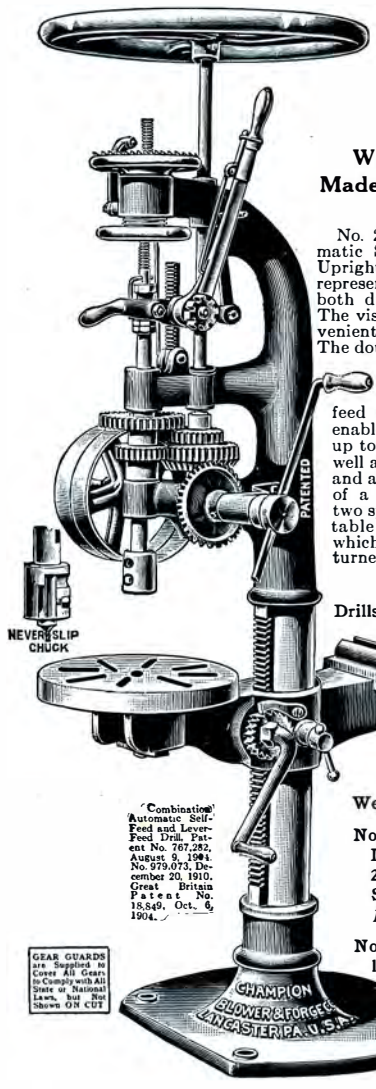
No. 203½P Drill, same as above, with Tight and Loose Pulleys, 11 Inches in Diameter, 2½-Inch Face. Speed 80 R.P.M. For Power and Hand Combined, Weight 650 lbs. *Code—Faltenlos* **134.00**

No. 203½ CP Drill, same as above, with Cone Pulleys and Countershaft, Complete for Power and Hand Combined, Weight 725 lbs. *Code—Faltasteis* **..... 153.00**

Extra for Wheel Holder Attachment 3.00

CHAMPION COMBINATION AUTOMATIC SELF-FEED AND DOUBLE COMPOUND LEVER-FEED UPRIGHT DRILL NO. 205

With Permanent Vise Attachment Made with Cut Gears and Ball Bearings


NEVER SLIP CHUCK
PATENTED
"Combination" Automatic Self-Feed and Lever-Feed Drill. Patent No. 767,282, August 9, 1904. No. 979,073, December 20, 1910. Great Britain Patent No. 18,849, Oct. 6, 1904.
GEAR GUARDS are Supplied to Cover All Gears to Comply with All State or National Laws, but Not Shown ON CUT
CHAMPION
BLOWER & FORGE CO.
LANCASTER, PA. U.S.A.

No. 205 Champion "Patented" Combination Automatic Self-Feed and **Double Compound** Lever-Feed Upright Drill with Permanent Vise Attachment represents the No. 203½ Drill shown on page 129, with both drilling table and vise permanently attached. The vise is of the swivel jaw pattern and is very convenient for holding many kinds of work while drilling. The double table arm is attached to the rack for raising and lowering and can be changed from the table to the vise in a moment as the rack turns with the table. The **Double Compound** Lever-feed to this Drill is very powerful, and therefore enables a mechanic to drill holes by lever with ease up to one inch in size. The Automatic Self-Feed as well as the Lever-Feed are independent of each other and are changed from one to the other in the fraction of a second. Has Double Back Cut Gears with two speeds, changing from single to back gears. The table of this Drill is raised and lowered by a rack, which is quick in action, never sticks, and can be turned back out of the way.

SPECIFICATIONS

Drills to center of 21-inch circle. Feed Screw has an up-and-down run of 5¼ inches. Has cut gears and two speeds. Greatest distance from table to spindle, 20 inches. Height of drill, 80 inches. Spindle bored like Never Slip Chuck to take in 4/4- or 5/4-inch straight shank bits. If specially ordered will be bored to take in ½-inch straight shank bits. Drills holes from 0 to 1½ inches.

Weight 750 lbs. *Code—Falco*..... **$171.00**

No. 205P Drill, same as above, with Tight and Loose Pulleys 11 Inches in Diameter and 2½-Inch Face for Power and Hand Combined. Speed 80 R.P.M. Weight 775 lbs. *Code—Falcord*..... **179.00**

No. 205CP Drill, same as above, with Cone Pulleys and Countershaft, Complete for Power and Hand Combined, Weight 850 lbs. *Code—Falmine*..... **198.00**

Extra for Square Base..... **18.00**

Extra for Wheel Holder Attachment **3.00**

CHAMPION COMBINATION AUTOMATIC SELF-FEED AND DOUBLE COMPOUND LEVER-FEED UPRIGHT POWER DRILL NO. 204

Made with Cut Gears and Ball Bearings

No. 204 Champion "Patented" Combination Automatic Self-Feed and Double Compound Lever-Feed Upright Power Drill is built to meet the demands for a cheap exclusive Power Drill. This Power Drill represents a well built and powerful tool for machine shops, wagon and carriage builders, boiler works. This Power Drill is supplied with the Champion "Patented" Double Compound Lever-Feed in combination with the Automatic Self-Feed. Either feed is always ready for operation and can be changed from one to the other in the fraction of a second. The Double Compound feature of the lever gives at least 80 per cent. more power for drilling holes by lever than any other power drill. It is changed from a plain drill to a Double Geared Drill in an instant by sliding the gears and has sufficient power to bore up to 1-inch holes with ease. With the balanced drill spindle it has the advantage of the instantaneous quick return of the drill bit out of the work and again instantaneously replacing the drill bit for drilling the next hole, which is a great feature. There is positively no turning backwards of the feed screw or ratchet wheel to get the drill bit out of the work with either feed.

This Power Drill is supplie with Cone Pulley and Cone Countershaft and tight and loose pulleys, 11 inches in diameter and 2½-inch face which furnishes in connection with the Double Back Gears six different changes of speed.

The table of this drill is raised and lowered by a rack, which is quick in action, never sticks, and can be turned back clear out of the way if desired.

SPECIFICATIONS

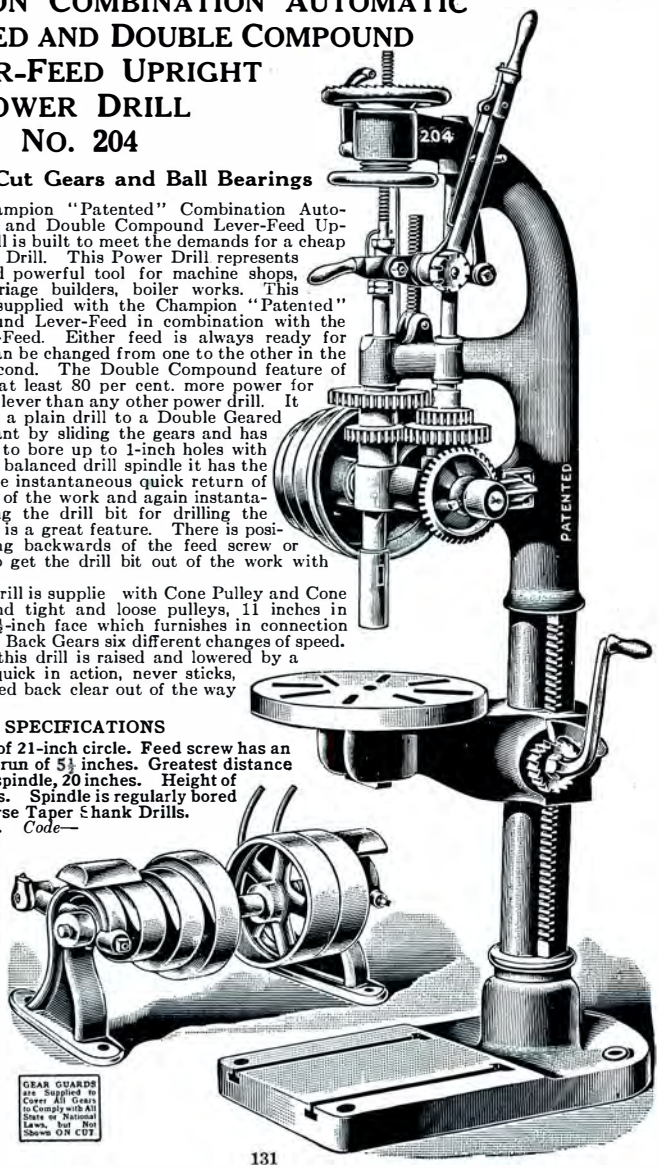
Drills to center of 21-inch circle. Feed screw has an up-and-down run of 5½ inches. Greatest distance from table to spindle, 20 inches. Height of drill, 80 inches. Spindle is regularly bored for No. 4 Morse Taper Shank Drills.

Weight 730 lbs. *Code—*
Fielah. **$171.00**

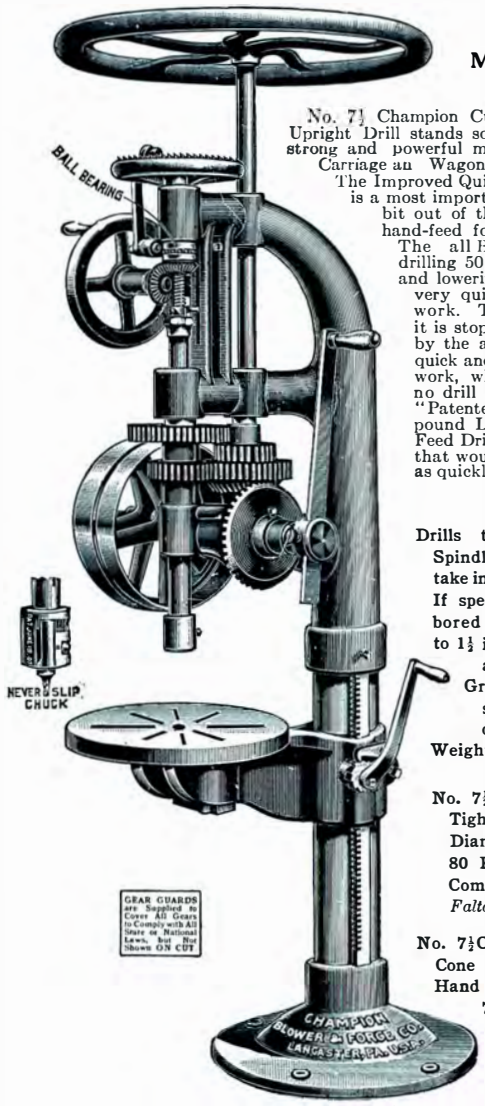
Extra for Never Slip Chuck for $\frac{1}{64}$-inch or ½-inch . . . 10.00

Extra for Wheel Holder Attachment 3.00

✓ Combination Automatic Self-Feed and Lever-Feed Drill, Patent No. 767,282, August 9, 1904. No. 979,073, December 20, 1910. Great Britain Patent No. 18,849, Oct. 6, 1904.



CHAMPION SELF-FEED UPRIGHT DRILL NO. 7½


BALL BEARING
NEVER SLIP CHUCK
GEAR GUARDS are Supplied to Cover All Gears to Comply with All State or National Laws, but Not Shown ON CUT
CHAMPION BLOWER & FORGE CO. LANCASTER, PA. U.S.A.

Made with Cut Gears and Ball Bearings

No. 7½ Champion Cut Geared Automatic Self-Feed Upright Drill stands solid on its own base, making a strong and powerful medium priced tool for Garages, Carriage an Wagon Builders and Blacksmith Shops. The Improved Quick-Return or Hand-Feed Wheel is a most important feature for both getting the bit out of the work quickly, or using as a hand-feed for drilling holes up to ½ inch. The all Bearings will save in power when drilling 50 per cent. The rack for raising and lowering the table is very convenient, very quick in action and very easy to work. The table always remains where it is stopped. With the power obtained by the arrangement of double gears for quick and slow speed, for light and heavy work, which is changed in an instant, no drill except the No. 203½ Champion "Patented" Combination Double Compound Lever-Feed and Automatic Self-Feed Drill was ever placed on the market that would do the same variety of work as quickly.

SPECIFICATIONS

Drills to center of 21-inch circle. Spindle bored like Never Slip Chuck to take in $\frac{1}{64}$-inch straight shank drill bits. If specially ordered, spindle will be bored for ½-inch shank. Drills from 0 to 1½ inches. Feed screw has an up-and-down run of 7½ inches. Greatest distance from table to spindle, 20 inches. Height of drill, 80 inches.

Weight 600 lbs. *Code—Faltaro.*

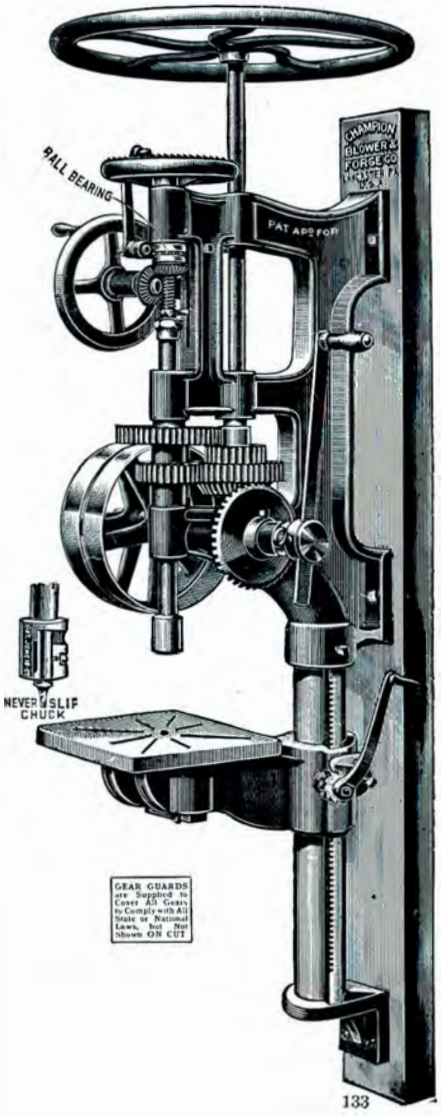
$108.00

No. 7½P Drill, same as above, with Tight and Loose Pulleys, 11 Inches in Diameter and 2½-Inch Face. Speed 80 R.P.M. For Hand and Power Combined, Weight 625 lbs. *Code—Faltado*..... **116.00**

No. 7½CP Drill, same as above, with Cone Pulleys and Countershaft for Hand and Power Combined, Weight 700 lbs. *Code—Faltaron* **135.00**

Extra for Wheel Holder Attachment..... **3.00**

CHAMPION SELF-FEED POST DRILL NO. 7


BALL BEARING
CHAMPION BLOWER & FORGE CO
PAT APP'D FOR
NEVER SLIP CHUCK
GEAR GUARDS are Supplied to Cover All Gears to Comply with All State or National Laws, but Not Shown ON CUT

133

Made with Cut Gears and Ball Bearings

No. 7 Champion Cut-Geared Automatic Self-Feed Post Drill contains **modern improvements which no user of a Drill can afford to do without, where time and labor is a consideration.**

The Improved Quick-Return or Hand-Feed Wheel is a most important feature for both getting the bit out of the work quickly, or to use as a hand-feed for drilling holes up to ½ inch.

The rack for raising or lowering the table is very convenient, quick in action and easy to work. The table always remains where it is stopped. It will not stick and throw the drill and table out of line. The table can be turned from under the drill spindle the same as if no rack was there.

With the power obtained by the double gears for quick and slow speed, for light and heavy work, which is changed in an instant in connection with the new improvements applied to this Drill, no drill except the No. 203 Champion "Patented" Combined Lever and Automatic Self-Feed Drills was ever placed on the market, that would do the same variety of work as quickly.

SPECIFICATIONS

Drills to center of a 21-inch circle. Spindle bored like Never Slip Chuck to take in ½-inch straight shank drill bits. If specially ordered, spindle will be bored for ½-inch shank. Drills from 0 to 1½ inches. Feed screw has an up-and-down run of 5½ inches. Greatest distance from table to spindle, 19 inches. Height of drill, 65 inches.

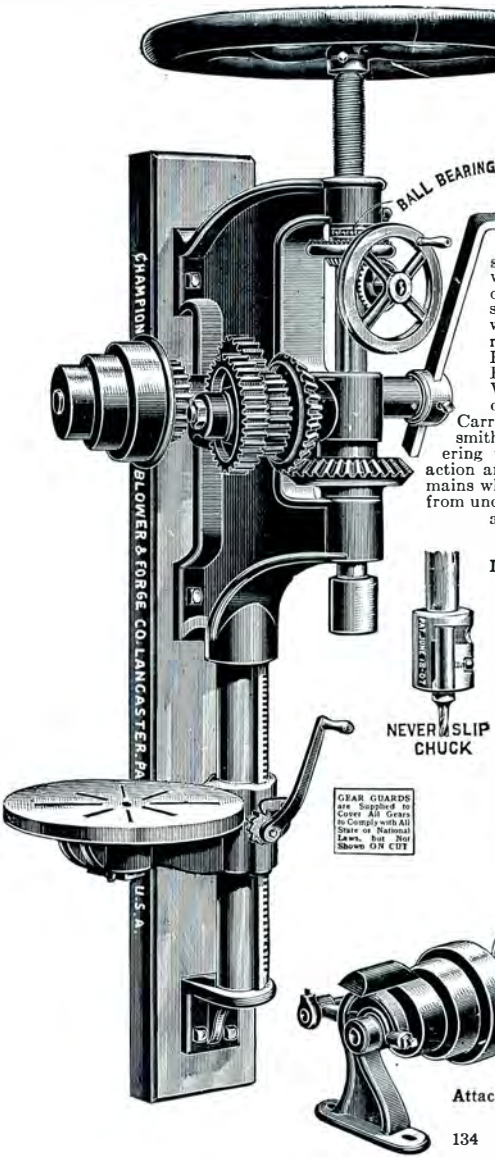
Weight 410 lbs. *Code—Fedele.* **$72.00**

No. 7P Improved Drill, same as above, with Tight and Loose Pulleys, 11 Inches in Diameter and 2½-Inch Face. Speed 80 R.P.M. Weight 435 lbs. *Code—Fedelone*..... **80.00**

Extra for Wheel Holder Attachment..... **3.00**

CHAMPION SELF-FEED POST DRILL NO. 25

Made with Cut Gears and Ball Bearings

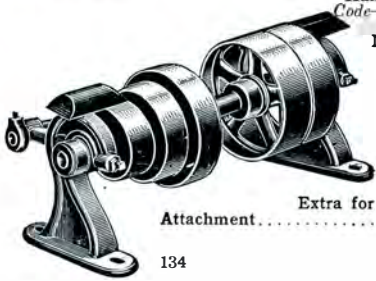

BALL BEARING
CHAMPION
BLOWER & FORGE CO. LANCASTER, PA.
U.S.A.
NEVER SLIP CHUCK
GEAR GUARDS are Supplied to Cover All Gears to Comply with All State or National Laws, but Not Shown ON CUT

No. 25 Champion Automatic Self-Feed Post Drill is a practical tool for all kinds of drilling, a single or double back-geared Drill which can be changed from one to the other instantly. Gears revolve in same direction that crank is turned, which adds to **light running and momentum of gears.** Automatic Self-Feed is complete and practical; Hand-Feed Wheel, or Quick-Return Wheel, meets many demands for quick work, for Machine Shops, Carriage Builders, Railroad Shops, Blacksmith Shops, etc. Rack for raising or lowering table is very convenient, quick in action and easy to work. Table always remains where it is stopped, and can be turned from under drill spindle, out of the way same as if no rack was there.

SPECIFICATIONS

Its spindle is bored like Never Slip Chuck to take in $\frac{1}{64}$-inch straight shank drill bits. If specially ordered, will be bored for $\frac{1}{2}$-inch straight shank drill bits. Drills from 0 to 1 $\frac{1}{4}$-inch holes, to center of 22-inch circle; feed screw has up-and-down run of 6 $\frac{1}{4}$ inches. Greatest distance from table to spindle, 19 inches. Height of drill, 72 inches. Weight 420 lbs. *Code—Feilspan* **$84.00**

No. 25P Drill with Tight and Loose Pulleys, 11 Inches in Diameter and 2$\frac{1}{2}$-Inch Face. Speed 80 R .P. M. for Power and Hand, Wt. 445 lbs. *Code—Felpilla* **92.00**

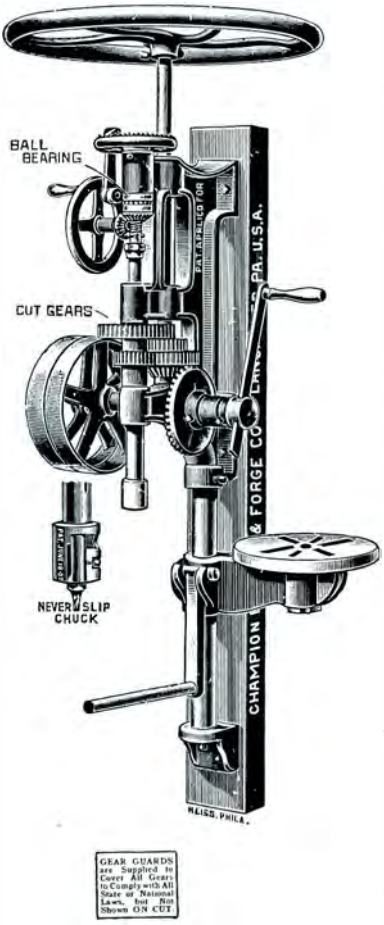


No. 25CP Drill, with Cone Pulley and Countershaft, Complete for Power and Hand, Weight 520 lbs. *Code—Feilnadel* . . . **111.00**

Extra for Wheel Holder Attachment **3.00**

CHAMPION SELF-FEED POST DRILL NO. 999

Made with Cut Gears and Ball Bearings


BALL BEARING
CUT GEARS
NEVER SLIP CHUCK
CHAMPION
GEAR GUARDS are Supplied to Cover All Gears to Comply with All State or National Laws, but Not Shown ON CUT

Champion Improved No. 999 Cut-Geared Self-Feed Post Drill is made with two valuable and useful improvements:

1st. The Quick-Return or Hand-Feed Wheel, which will soon save first cost of the Drill for both getting the bit out of the work quickly or to use as a hand-feed for drilling holes up to ½-inch.

2d. The Ball-Bearing saves 50 per cent. in power when drilling. The larger the hole the more power saved.

Champion Improved No. 999 Self-Feed Post Drill has Cut Gears so arranged that quick or slow motion is given to Spindle, as light or heavy work may require, and is a desirable tool for machine shops or factories, as well as blacksmiths or carriage makers.

SPECIFICATIONS

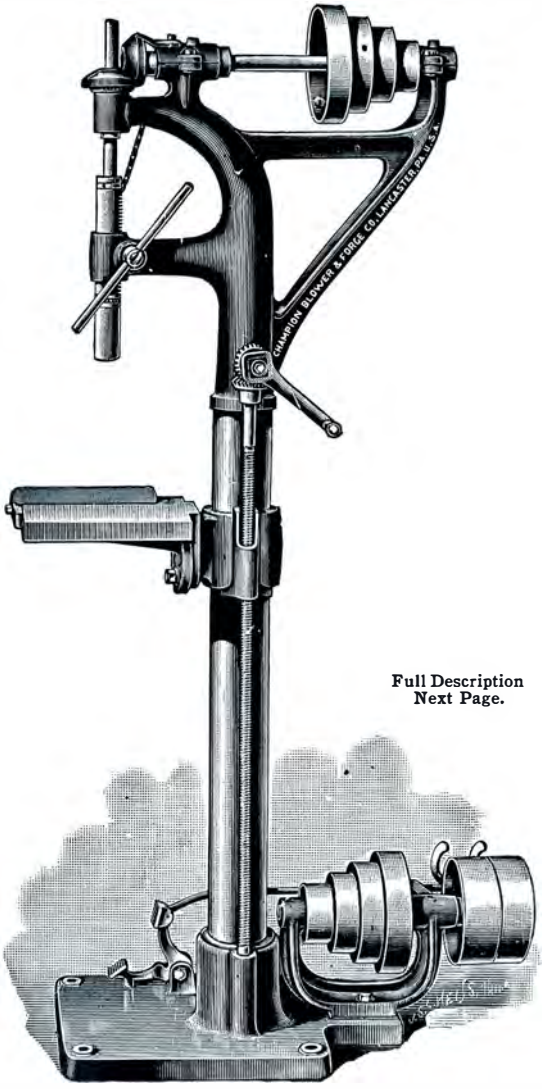
Drills to center of a 16-inch circle. Spindle bored like Never Slip C uck to take drills with ½-inch shank. Will be bored for ¾-inch shank if specially ordered; will drill holes from 0 to 1½ inches. Feed has an up-and-down run of 5 inches. Greatest distance from table to spindle, 16 inches. Height of drill, 61 inches.

Weight 290 lbs. *Code—Febrigeno*. . **$66.00**

No. 999P Drill, same as above, with Tight and Loose Pulleys, 11 Inches in Diameter and 2½-Inch Face. Speed 70 R.P.M. Weight 315 lbs. *Code—Febrinha*. **74.00**

Extra for Wheel Holder Attachment 3.00

THE CHAMPION 14-INCH UPRIGHT POWER DRILL



Full Description Next Page.

THE CHAMPION 14-INCH UPRIGHT POWER DRILL

The Champion 14-Inch Upright Power Drill is a gear-driven drill of the best and most improved construction. It combines the simplicity, speed and ease of operation of a sensitive drill with extreme power not usually found on drills of this kind.

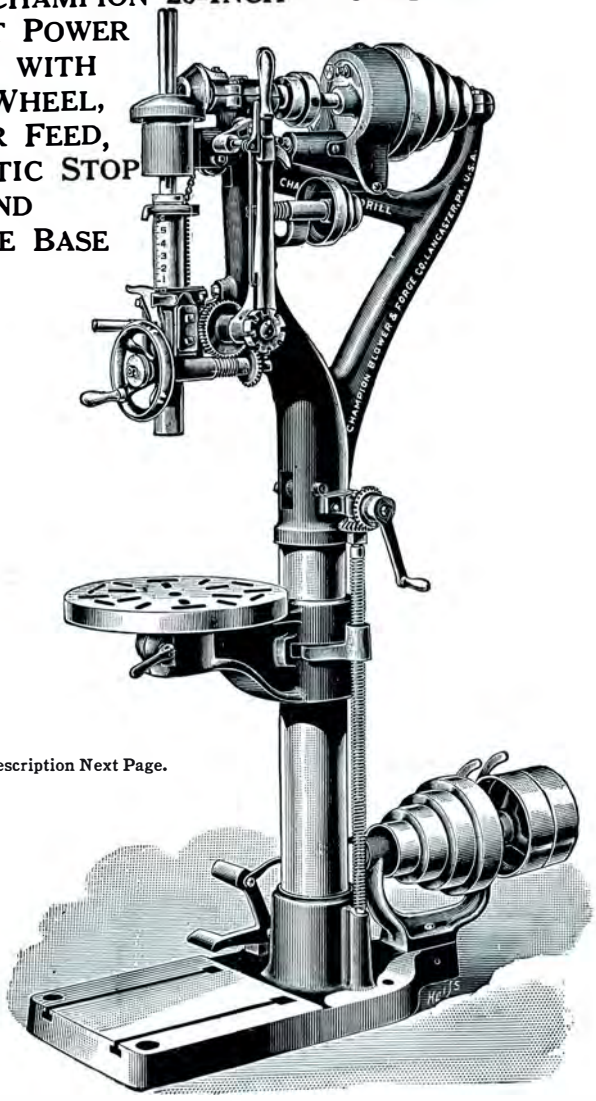
All bevelled gears are planed, guaranteeing a perfect and smooth running drill. The bearings are large and powerful, the upper bearing being split to take up wear when necessary. The spindle made of high carbon steel is graduated, ground and fitted throughout with ball bearings, and is counterbalanced by a weight in the hollow column.

The table is tilting and can be clamped permanently at any angle and with the angular bracket makes it very convenient for complicated work. It has a screw for raising and lowering the table, which is quick acting, the table remaining firmly where it is placed. All gears are carefully guarded.

SPECIFICATIONS

Height of Drill	**69 inches.**
Distance between table and spindle	**34 inches.**
Distance between spindle and base	**45 inches.**
Distance from column to center of spindle	**7¼ inches.**
Diameter of Column	**4 inches.**
Traverse of Table on Column	**27 inches.**
Size of table	**11 x 11 inches.**
Diameter of spindle	**⅞ inch.**
Traverse of spindle	**6½ inches.**
Size of tight and loose pulleys	**7 x 2½ inches.**
Size of cone pulley (four steps)	**7 1/16–6 1/16–5⅛–3 1/16 x 1⅝ face.**
Speed of driving pulleys	**225 R.P.M.**
Floor space	**16 x 18 inches.**
Capacity	**¾ inch.**
Horsepower required	**1 H.P.**
Hole in the spindle bored to fit No. 2 Morse Taper.	
Weight 425 lbs. *Code—Fiodos*	**$120.00**

THE CHAMPION 20-INCH BACK-GEARED UPRIGHT POWER DRILL WITH LEVER, WHEEL, POWER FEED, AUTOMATIC STOP AND SQUARE BASE



Full Description Next Page.

CHAMPION 20-INCH BACK-GEARED UPRIGHT POWER DRILL WITH LEVER, WHEEL, POWER FEED AND AUTOMATIC STOP

AN EXCLUSIVE MACHINE SHOP POWER DRILL

The Champion 20-inch Upright Power Drill is the most thoroughly modern and up-to-date Power Drill manufactured, combining all the good features that a machine of its kind ought to have; in every respect equal and in many respects superior to any Drill of its size on the market. It combines simplicity and speed in operation with strength and rigidity and drills with perfect accuracy holes up to 1½ inches. It is a strictly high-grade Power Drill with the very best material and workmanship represented in its entire construction.

All Gears are machine cut. The Crown Gear runs on a high grade end thrust Ball Bearing which not only allows this gear to operate with less friction but also avoids the usual wear on babbitted bearings which eventually causes this gear to incorrectly mesh with the pinion. Radially the crown gear runs in a phosphor-bronze bushing which likewise insures longer life to the wearing qualities of this important gear. The Bevel Gears are all planed, guaranteeing a perfectly smooth and noiseless running drill. The Bearings are large and powerful. The upper shaft has split bearings to take up the customary wear and tear. The change from plain to Back Geared Drill is done in an instant by simply sliding the gears.

The Champion 20-inch Back-Geared Upright Power Drill has eight speeds with three (3) distinct and complete feeds—Power-, Wheel-, and Lever-Feed.

It is supplied with all the graduated and automatic features found on drills costing ten times the amount. The spindle and sleeve are ground and counter-balanced by a weight in the hollow column.

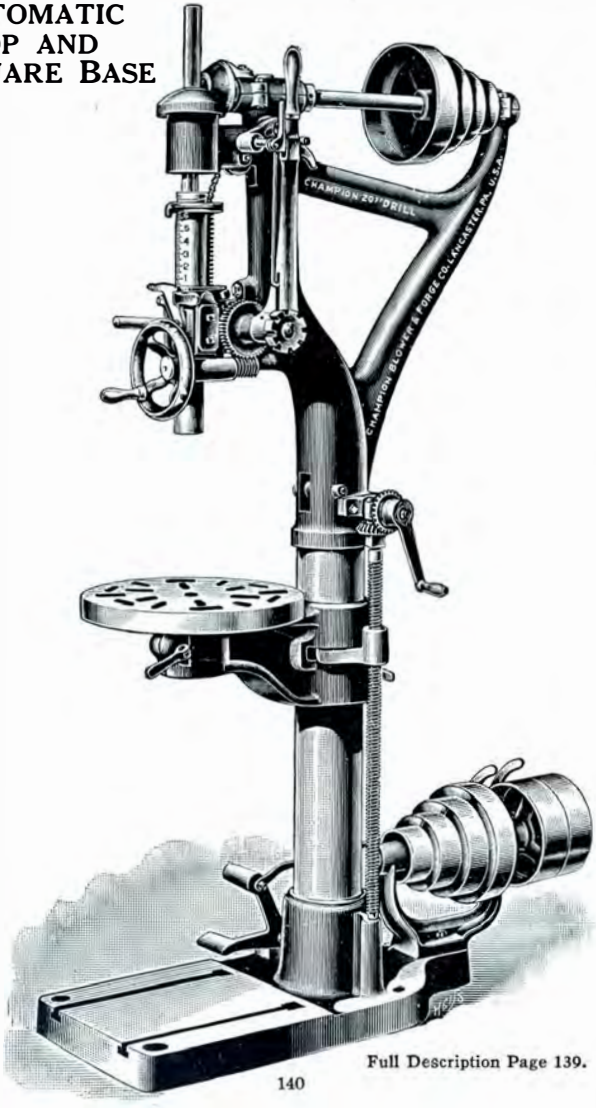
This Drill has screw for raising and lowering the table, which is very convenient and quick in action with table firmly remaining where it is stopped. It is the most accurate and best finished Power Drill that human hands can manufacture.

DIMENSIONS OF THE CHAMPION 20-INCH POWER DRILL

Height of drill.....75 inches.
Distance between table and spindle.....27 inches.
Distance between spindle and base.....42¼ inches.
Diameter of crown gear.....5¼ inches.
Diameter of pinion gear.....3¼ inches.
Diameter of column.....5¼ inches.
Traverse of table on column...18½ inches.
Diameter of table.....16 inches.
Diameter of spindle.....1¼ inches.
Traverse of spindle.....8 inches.
Size of tight and loose pulleys.....8 x 2¾ inches.
Size of cone pulleys (4-step).....4, 5¾, 7½, 9 x 2 in. face.
Speed of driving pulleys.....300 R.P.M.
Floor space required.....16 x 46 inches.
Horse power required.....1
Hole in spindle bored to fit Morse Taper No. 4.

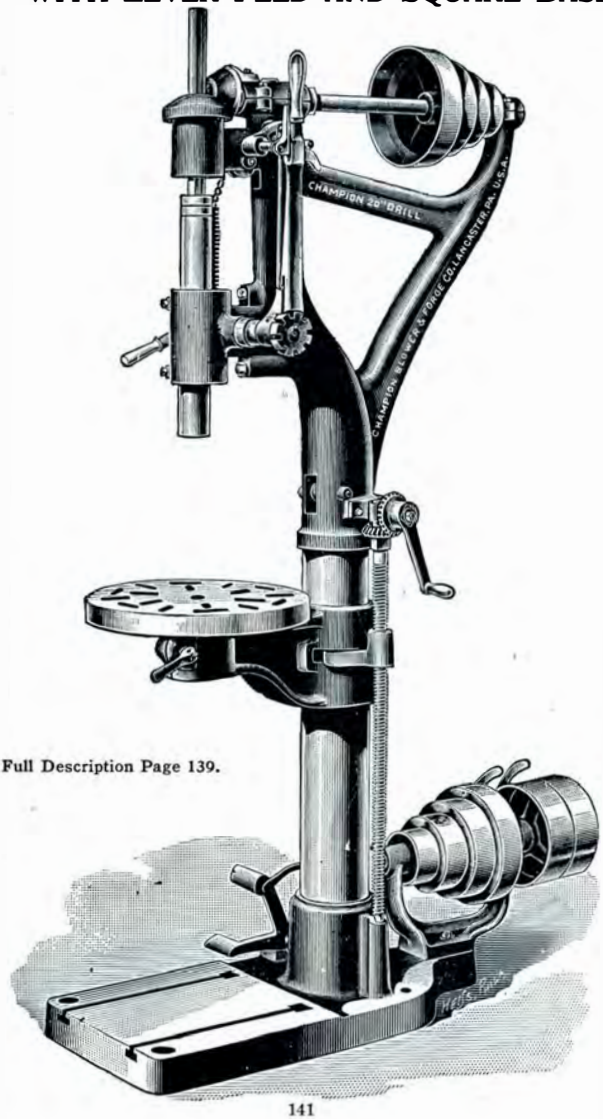
Style	*Weight*	*Code*	*List Price*
20-Inch, Back Geared, lever, wheel and power feed; automatic stop and square base	**860 lbs.**	**Feidhar**	**$200.00**
20-Inch, Plain lever, wheel and power feed; automatic stop and square base	**850 lbs.**	**Feid**	**180.00**
20-Inch, Plain lever and wheel feed; automatic stop and square base	**820 lbs.**	**Feim**	**170.00**
20-Inch, Plain lever feed, and square base	**800 lbs.**	**Feimar**	**160.00**

THE CHAMPION 20-INCH UPRIGHT POWER DRILL WITH LEVER AND WHEEL FEED, AUTOMATIC STOP AND SQUARE BASE



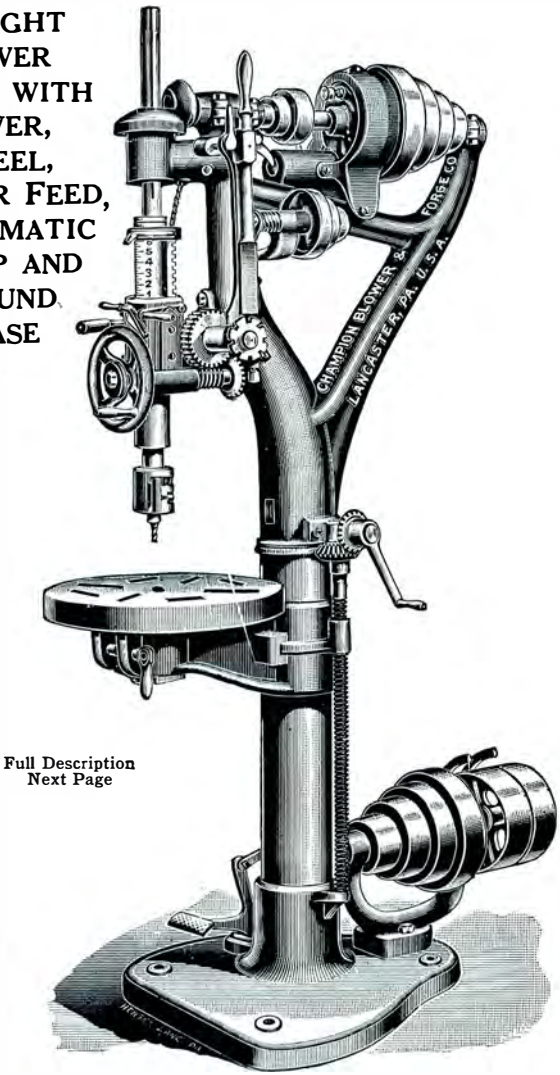
Full Description Page 139.

THE CHAMPION 20-INCH UPRIGHT POWER DRILL WITH LEVER FEED AND SQUARE BASE



Full Description Page 139.

THE CHAMPION 20-INCH BACK-GEARED UPRIGHT POWER DRILL WITH LEVER, WHEEL, POWER FEED, AUTOMATIC STOP AND ROUND BASE



Full Description
Next Page

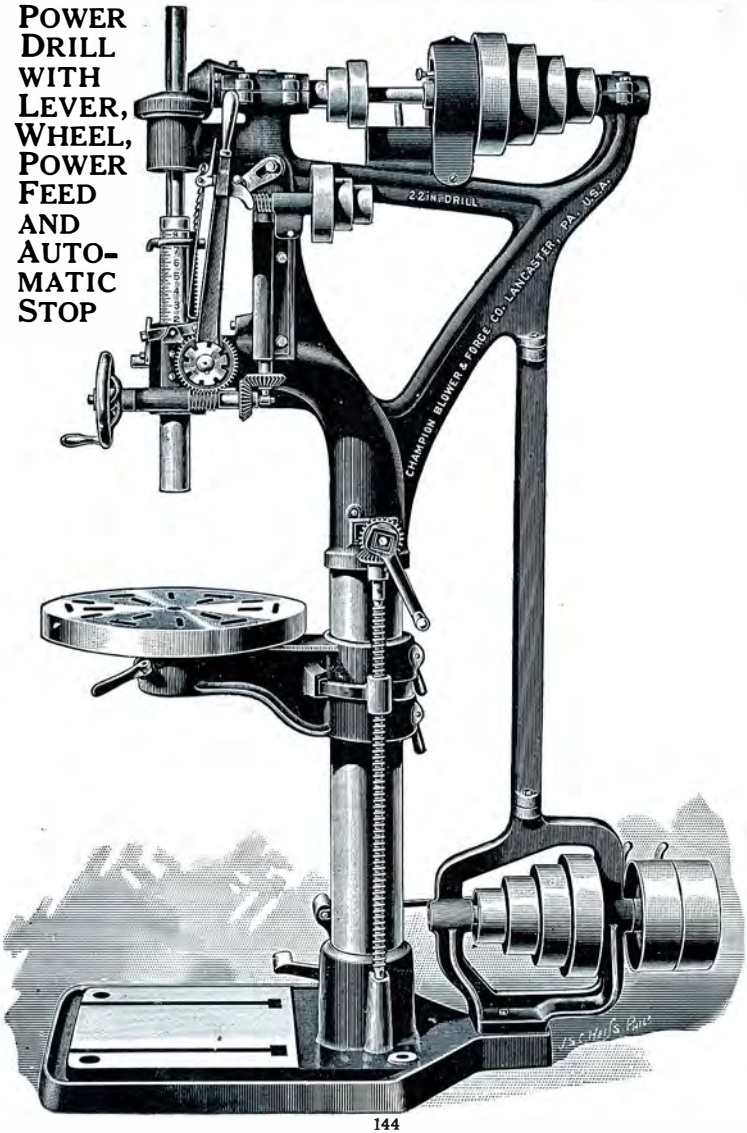
CHAMPION 20-INCH BACK-GEARED UPRIGHT POWER DRILL WITH LEVER, WHEEL, POWER FEED, AUTOMATIC STOP AND ROUND BASE

The Champion 20-inch Back Geared Power Drill as shown on opposite page is in every detail in its entire construction precisely the same as the 20-inch Machine Shop Drill shown on pages 138 and 139, excepting the base and table arm which have been designed to meet the requirements for drilling tires for blacksmiths, carriage and wagon builders. It is however just as suitable and perfect a Drill for machine shop purposes where a square base is not necessarily required for special work, as the Drill stands as firm and solid as on a square base. This Drill like the machine shop Drill, has simplicity and speed in operation with strength and rigidity. It drills with perfect accuracy from the smallest holes up to 1½ inches. It is a strictly high grade Power Drill with the very best material and workmanship represented in its entire construction. The gears are Machine Cut. The bearings are all large and powerful. The change from a plain Drill to a Double Back Geared Drill is accomplished in an instant by sliding the gears. It has eight speeds with three distinct and complete feeds: Power Feed, Wheel Feed and Lever Feed. It is supplied with all the graduated and automatic features found on Drills costing ten times the amount. The spindle and sleeve are ground and counterbalanced by a weight in the hollow column; has Automatic Stop Attachment with Quick Return Lever giving rapid movement to the spindle. Has screw for raising and lowering the table, which is very convenient and quick in action with the table firmly remaining where it stops.

For full dimensions and other information read pages 138 and 139.

Style	*Weight*	*Code*	*List Price*
20-Inch, Back Geared, lever, wheel and power feed; automatic stop and round base	**860 lbs.**	**Feidgut**	**$200.00**
20-Inch, Plain lever, wheel and power feed; automatic stop and round base	**850 lbs.**	**Fekat**	**180.00**
20-Inch, Plain lever and wheel feed; automatic stop and round base	**820 lbs.**	**Fekima**	**170.00**
20-Inch, Plain lever feed and round base	**800 lbs.**	**Fekur**	**160.00**
Extra for Never Slip Chuck for either $\frac{1}{64}$- or $\frac{1}{2}$-Inch Bits			**10.00**
Extra for Wheel Holder attachment for drilling tires			**8.00**

CHAMPION 22-INCH BACK-GEARED UPRIGHT POWER DRILL WITH LEVER, WHEEL, POWER FEED AND AUTOMATIC STOP



CHAMPION 22-INCH BACK-GEARED UPRIGHT POWER DRILL WITH LEVER, WHEEL, POWER FEED AND AUTOMATIC STOP

The 22-Inch Back Geared Power Drill combines all the high grade features of a strictly first class Machine Shop Power Drill. It is constructed to withstand heavy work, as well as being adapted for light and rapid drilling, making the best all around drill on the market for general repair work or manufacturing purposes.

This Drill has been especially designed for reboring cylinders on Ford Motor Cars, as well as Fordson Tractor cylinders, as the spindle has an 11 inch up and down run, and with this exceptional long traverse of the spindle enables the user to rebore cylinders from top to bottom of practically all makes of Motor Car Cylinders on one setting, thus enabling the operator to do a class of work which heretofore required a 25-inch Drill, meaning an expenditure of almost double the cost of this Drill.

The brace being placed between the center of cone pulleys makes a rigid connection from top of drill to base, eliminating vibration.

The Crown Gear runs in a Phosphor Bronze Bushing of the highest grade, and the Crown Gear is also equipped with an End Thrust Ball Bearing, which reduces the friction and eliminates the wearing of upper end of Crown Gear Bearing, thus insuring easier running and durability.

The Spindle is graduated and is ground to a micrometer fit and equipped with friction-less ball bearings. All Gears are machine cut scientifically accurate, which insures silent running and long life. The long split bearings on top of horizontal shaft allow for taking up wear when necessary. The Drill is made with Planed Square Base, having T slots to enable heavy work to be held firmly to base. The base is constructed with a pocket on each side and front to retain oil or drippings from tool lubrication.

The change from plain to back geared Drill is done in an instant by a movement of the eccentric shaft.

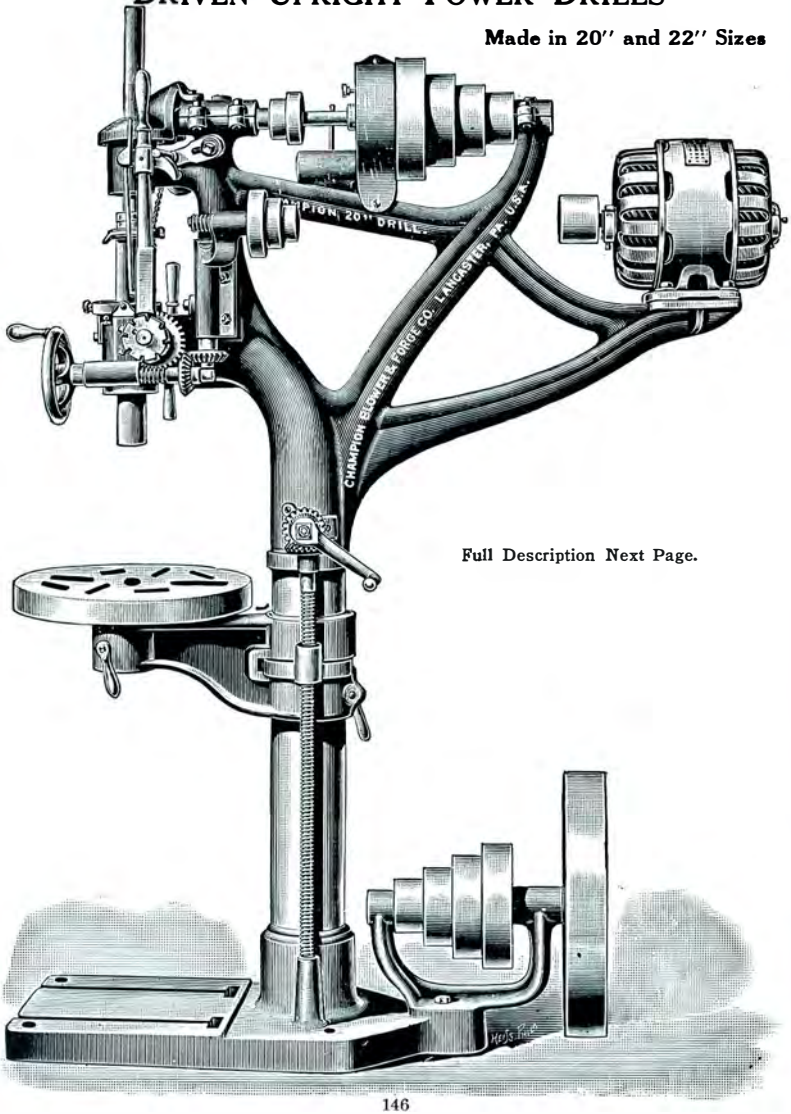
Has eight speeds with three distinct and complete feeds; Power Feed, Hand Wheel Feed and Lever Feed. Has Automatic Stop with quick return lever giving rapid movement to Spindle. Spindle is counterbalanced by special cable chain attached to weight in column. Has quick acting screw for raising and lowering table. Drills with perfect accuracy from smallest holes up to 1½ inch.

SPECIFICATIONS

Height of Drill	**76 in.**
Distance between table and spindle	**27½ in.**
Distance between spindle and base	**43 in.**
Distance from column to center of spindle	**11½ in.**
Diameter of column	**5¼ in.**
Traverse of table on column	**21 in.**
Diameter of table	**18 in.**
Diameter of spindle	**1½ in.**
Traverse of spindle	**11 in.**
The Power Feeds per revolution of spindle for the various cone steps on power feed	**.004, .012, .020**
Size of tight and loose pulleys	**8 x 2¾ in.**
Hole in spindle bored to fit Morse taper No. 4.	
Size of cone pulleys (4 step)	**4, 5¾, 7½, 9 x 2 in. face.**
Speed of driving pulleys	**300 R.P.M.**
Floor space required	**19½ x 47 in.**
Horse Power required	**1**
Weight	**1150 lbs.**
Code—Figad.	
List Price	**$250.00**

CHAMPION BACK-GEARED ELECTRICALLY DRIVEN UPRIGHT POWER DRILLS

Made in 20″ and 22″ Sizes



Full Description Next Page.

CHAMPION BACK-GEARED ELECTRICALLY DRIVEN UPRIGHT POWER DRILLS

Made in 20-Inch and 22-Inch Sizes

Champion 20-inch and 22-inch Back-Geared Upright Electrically Driven Power Drills, represent in every detail of gearing, construction and automatic features the 20-inch and 22-inch Drills as shown on pages 138, 139, 144 and 145, the only difference between the drills is that this drill is operated by electric motor. The motor is placed in such a position on the drill with the pulley for driving the drill at the lower end, so as to give a long belt between the motor and driving pulley on the drill. This gives the drill an advantage in power not usually found in electric drills. The device for starting and stopping the motor is attached to the drill at a very convenient place so that the operator can start or stop the drill without changing position. By carefully reading the description and dimensions of the 20-inch and 22-inch Drills on pages given above it will be found that this drill is a very practical and useful tool and will produce a great range of work. Its double back gearing with the automatic feature in connection with the No. 4 Morse Taper with which this drill is supplied makes it a drill that will bore holes from the smallest up to $1\frac{1}{2}$ inches.

Before ordering this drill ask your electric current manufacturer whether your current is direct or alternating and the voltage. If alternating the cycles or alternations and phase.

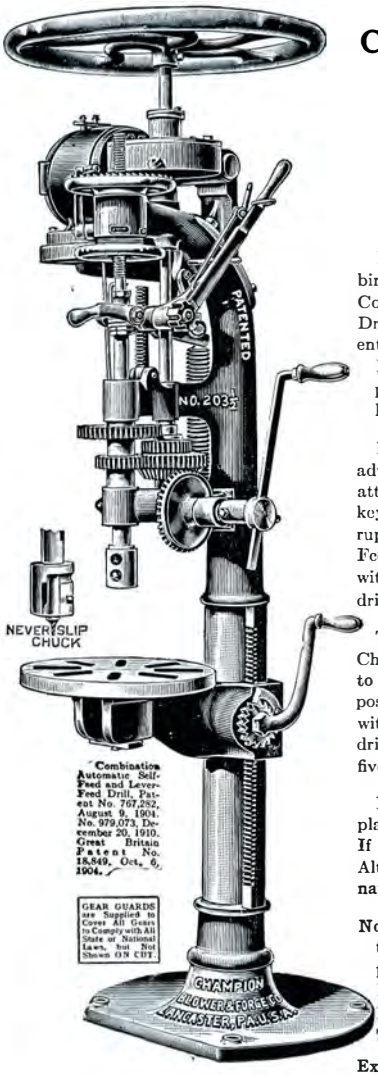
Champion 20-Inch Back-Geared Upright Electrically Driven Power Drill, with Square Base as shown on pages 138 and 139, equipped with 1 H.P. Motor for either Direct or Alternating Current, any voltage, Weight 1,070 lbs. *Code—Fiedpost* **$350.00**

Champion 22-Inch Back-Geared Upright Electrically Driven Power Drill with Square Base as shown on pages 144 and 145 equipped with 1 H.P. motor for either Direct or Alternating Current, any voltage, Weight 1,200 lbs. *Code—Fiedmast* **400.00**

Extra for Never Slip Chuck for either $\frac{1}{64}$- or $\frac{1}{2}$-Inch Bits **10.00**

Extra for Wheel Holder Attachment for Drilling Tires **8.00**

CHAMPION COMBINATION AUTOMATIC SELF-FEED AND DOUBLE COMPOUND LEVER-FEED ELECTRICALLY DRIVEN UPRIGHT DRILL NO. 203½E


PATENTED
NO. 203½
NEVER-SLIP CHUCK
Combination Automatic Self-Feed and Lever-Feed Drill, Patent No. 767,282, August 9, 1904. No. 979,073, December 20, 1910. Great Britain Patent No. 18,849, Oct. 6, 1904.
GEAR GUARDS are Supplied to Cover All Gears to Comply with All State or National Laws, but Not Shown ON CUT.
CHAMPION
BLOWER & FORGE CO.
LANCASTER, PA. U.S.A.

Made with Cut Gears and Ball Bearings

No. 203½E Champion "Patented" Combination Automatic Self-Feed and Double Compound Lever-Feed Electrically Driven Post Drill represents the 203½ Champion "Patented" Double Compound Link and Oscillating Rack and Pinion Lever-Feed as found on page 129, which enables the operator to drill holes up to 1¼ inches.

In connection with all its Electrically Driven advantages, this Drill can be operated by attaching the crank and drawing a sliding key should the Electric Current be interrupted. The change from Automatic Self-Feed requires but the fraction of a second with the Drill Bit returning instantaneous for drilling the next hole.

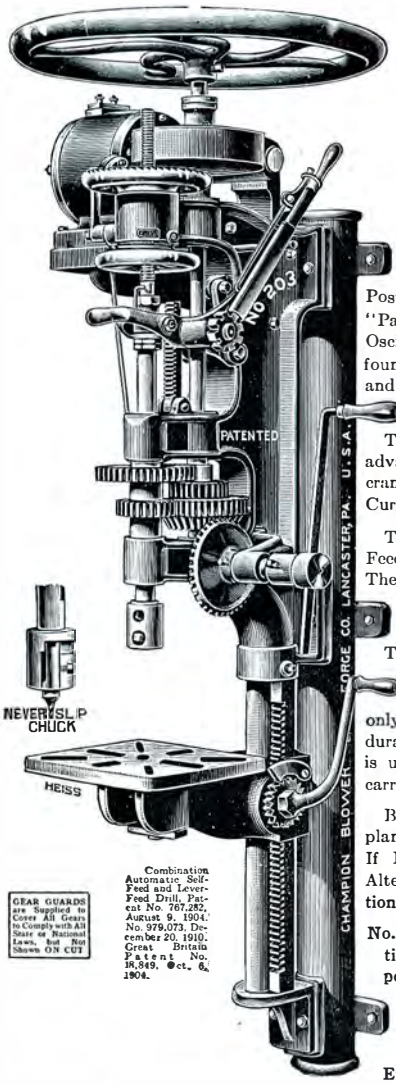
The motor is our latest design with the Champion Standard Worm Drive connected to the Drill, thus making the Drive not only positively noiseless, but powerful and durable, with same worm and pitch that is used to drive automobile trucks with a capacity of five tons.

Before ordering ask your electric current plant if your current is **direct or alternating. If** Direct Current get the **voltage only.** If Alternating Current, get the **cycles** or **alternations, phase** and **voltage.**

No. 203½E Champion "Patented" Combination Automatic Self-Feed and Double Compound Lever-Feed Electrically Driven Post Drill, Drills to Center of a 21-Inch Circle, Drills Holes from 0 to 1¼ Inches, Weight 760 lbs. *Code—Fapelar*.....**$250.00**

Extra for Wheel Holder Attachment... 3.00

CHAMPION COMBINATION AUTOMATIC SELF-FEED AND DOUBLE COMPOUND LEVER-FEED ELECTRICALLY DRIVEN POST DRILL NO. 203E



GEAR GUARDS are Supplied to Cover All Gears to Comply with All State or National Laws, but Not Shown ON CUT

Combination Automatic Self-Feed and Lever-Feed Drill, Patent No. 767,282, August 9, 1904. No. 979,073, December 20, 1910. Great Britain Patent No. 18,849, Oct. 6, 1904.

Made with Cut Gears and Ball Bearings

No. 203E Champion "Patented" Combination Automatic Self-Feed and Double Compound Lever-Feed Electrically Driven Post Drill represents the No. 203 Champion "Patented" Double Compound Link and Oscillating Rack and Pinion Lever-Feed, as found on page 127, together with the heavy and rigid cast-iron post, enables the operator to drill holes up to 1¼ inches.

This Drill with all its electrically driven advantages can, if necessary, be operated by a crank by sliding a key should the Electric Current service be interrupted at any time.

To change from Lever to Automatic Self-Feed requires but the fraction of a second. The Drill Bit returns instantaneous for drilling next hole, therefore no time is lost in turning the Feed Screw back.

The Motor is our latest design with Champion Standard Worm Drive connected to the Drill, thus making the drill not only positively noiseless, but powerful and durable, having the same worm and pitch as is used to drive Automobile trucks with a carrying capacity of five tons.

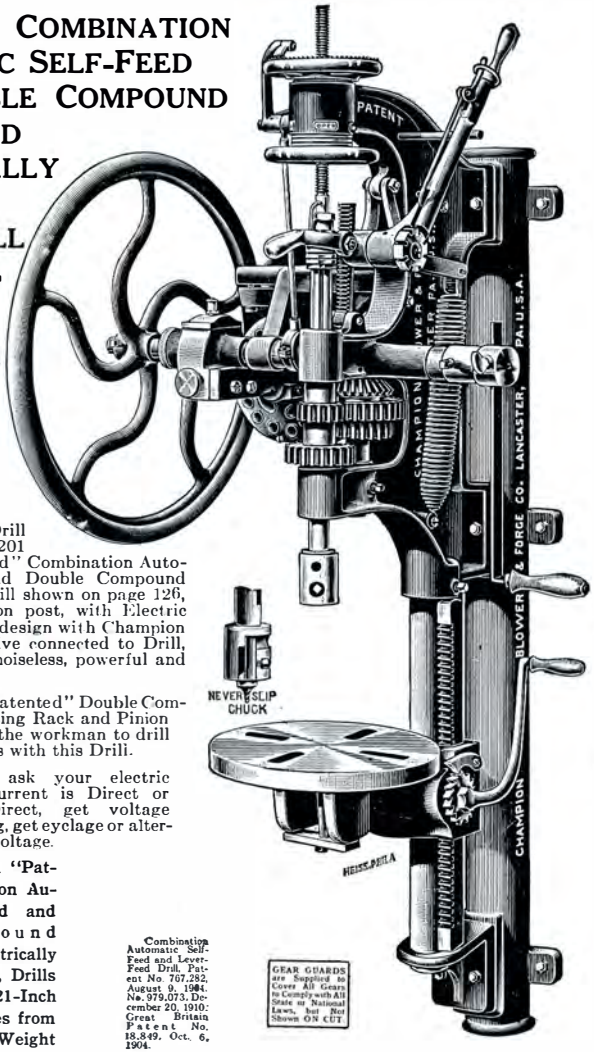
Before ordering ask your electric current plant if your current is **direct or alternating.** If Direct Current get the **voltage only.** If Alternating Current, get the **cycles** or **alternations, phase** and **voltage.**

No. 203E Champion "Patented" Combination Automatic Self-Feed and Double Compound Lever-Feed Electrically Driven Post Drill, Drills to Center of a 21-Inch Circle, Drills Holes from 0 to 1½ Ins., Wt. 675 lbs. *Code—Faedera*. . .**$200.00**

Extra for Wheel Holder Attachment. . . 3.00

CHAMPION COMBINATION AUTOMATIC SELF-FEED AND DOUBLE COMPOUND LEVER-FEED ELECTRICALLY DRIVEN POST DRILL NO. 201E

Made with Cut Gears and Ball Bearings


PATENT
CHAMPION BLOWER & FORGE CO. LANCASTER, PA. U.S.A.
NEVER SLIP CHUCK
CHAMPION
HEISS, PHILA
GEAR GUARDS are Supplied to Cover All Gears to Comply with All State or National Laws, but Not Shown ON CUT

Combination Automatic Self-Feed and Lever-Feed Drill. Patent No. 767,282, August 9, 1904. No. 979,073. December 20, 1910: Great Britain Patent No. 18,849. Oct. 6, 1904.

No. 201E Champion "Patented" Combination Automatic Self-Feed Double Compound Lever-Feed Electrically Driven Post Drill represents the No. 201 Champion "Patented" Combination Automatic Self-Feed and Double Compound Lever-Feed Post Drill shown on page 126, and a rigid cast-iron post, with Electric Motor of our latest design with Champion Standard Worm Drive connected to Drill, thus making drive noiseless, powerful and durable.

The Champion "Patented" Double Compound Link, Oscillating Rack and Pinion Lever-Feed enables the workman to drill holes up to 1¼ inches with this Drill.

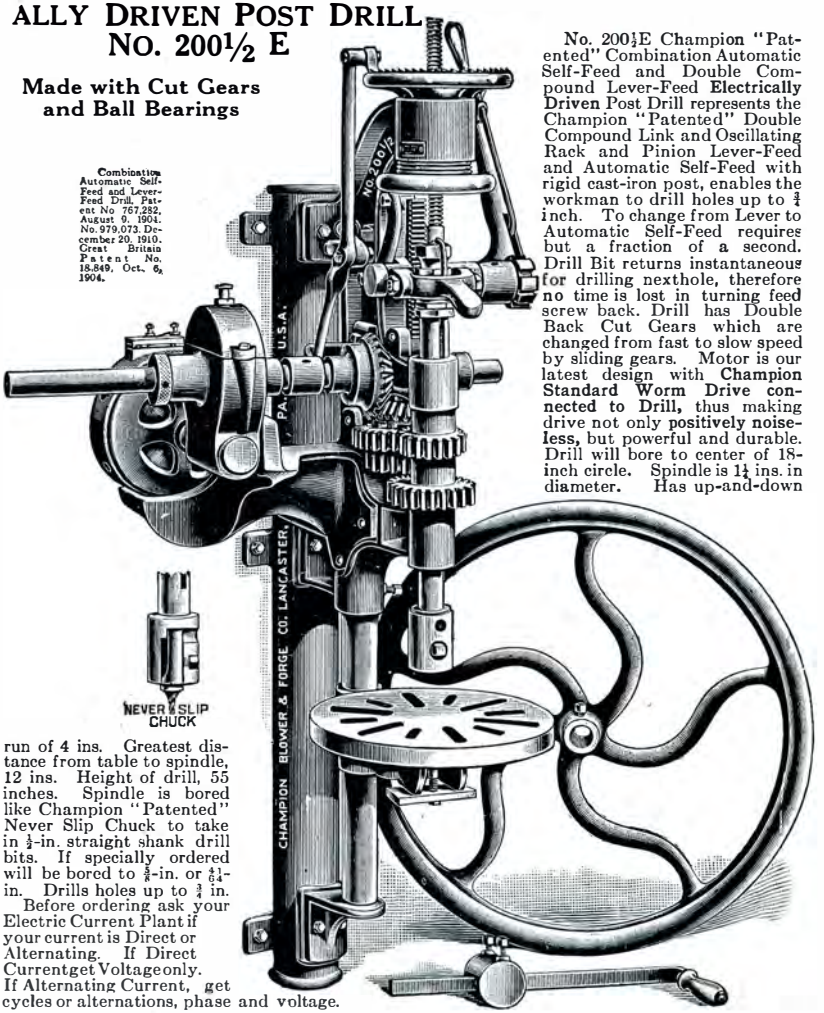
Before ordering ask your electric current plant if current is Direct or Alternating. If Direct, get voltage only. If Alternating, get cyclage or alternations, phase and voltage.

No. 201E Champion "Patented" Combination Automatic Self-Feed and Double Compound Lever-Feed Electrically Driven Post Drill, Drills to the Center of a 21-Inch Circle, Drills Holes from 0 to 1¼ Inches, Weight 655 lbs. *Code—Faper.*
$190.00

Extra for Wheel Holder Attachment..... 3.00

CHAMPION COMBINATION AUTOMATIC SELF-FEED AND DOUBLE COMPOUND LEVER-FEED ELECTRICALLY DRIVEN POST DRILL NO. 200½ E

Made with Cut Gears and Ball Bearings



Combination Automatic Self-Feed and Lever-Feed Drill. Patent No 767,282. August 9. 1904. No. 979,073. December 20. 1910. Great Britain Patent No. 18,849. Oct. 6, 1904.

No. 200½E Champion "Patented" Combination Automatic Self-Feed and Double Compound Lever-Feed **Electrically Driven** Post Drill represents the Champion "Patented" Double Compound Link and Oscillating Rack and Pinion Lever-Feed and Automatic Self-Feed with rigid cast-iron post, enables the workman to drill holes up to ¾ inch. To change from Lever to Automatic Self-Feed requires but a fraction of a second. Drill Bit returns instantaneous for drilling nexthole, therefore no time is lost in turning feed screw back. Drill has Double Back Cut Gears which are changed from fast to slow speed by sliding gears. Motor is our latest design with **Champion Standard Worm Drive connected to Drill,** thus making drive not only **positively noiseless,** but powerful and durable. Drill will bore to center of 18-inch circle. Spindle is 1¼ ins. in diameter. Has up-and-down run of 4 ins. Greatest distance from table to spindle, 12 ins. Height of drill, 55 inches. Spindle is bored like Champion "Patented" Never Slip Chuck to take in ½-in. straight shank drill bits. If specially ordered will be bored to ⅝-in. or $\frac{41}{64}$-in. Drills holes up to ¾ in.

Before ordering ask your Electric Current Plant if your current is Direct or Alternating. If Direct Currentget Voltageonly. If Alternating Current, get cycles or alternations, phase and voltage.

No. 200½E Champion "Patented" Combination Automatic Self-Feed and Double Compound Lever-Feed Electrically Driven Post Drill. Drills to Center of 18-Inch Circle. Weight 460 lbs. *Code—Fapas* **$160.00**

CHAMPION POWER BENCH DRILL
NO. 0

Made with Ball Bearings **For Light and Rapid Drilling**

SPECIFICATIONS

Drills to center of a 9-inch circle.

Bores holes up to $\frac{9}{16}$ inch in diameter.

Up-and-down run of spindle $3\frac{1}{4}$ inches.

Up-and-down run of table 9 inches.

Greatest distance from table to spindle 10 inches.

Greatest distance from planed base to spindle 16 inches.

Diameter of column $2\frac{1}{2}$ inches.

Size tight and loose pulleys 4 x $1\frac{3}{4}$ inches.

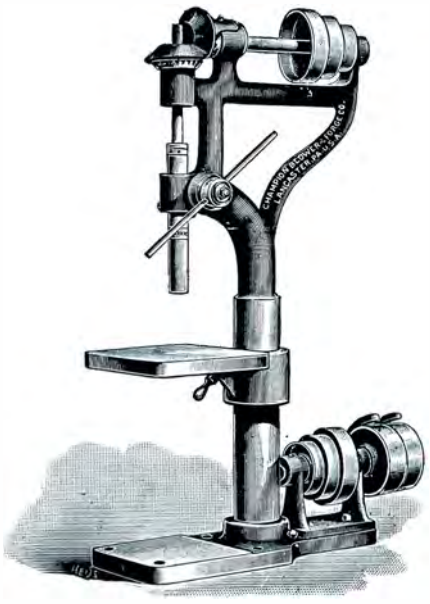
Size of largest cone pulley $4\frac{1}{2}$ x $1\frac{1}{2}$ inches.

Size of smallest cone pulley 3 x $1\frac{1}{2}$ inches.

Spindle is bored with No. 1 Morse taper hole.

Height 32 inches.

Weight 115 pounds.



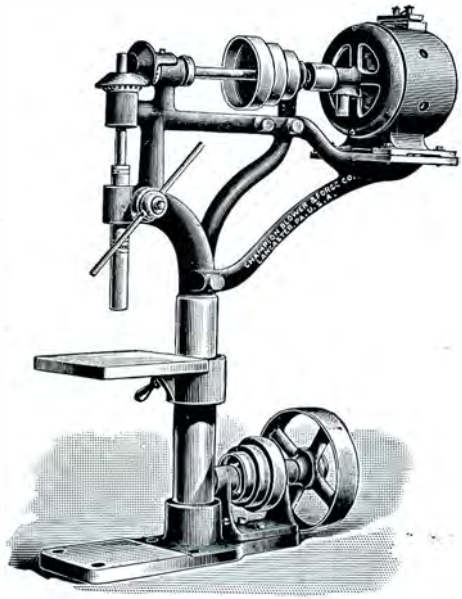
The Champion Power Bench Drill represents a high grade, powerful and well built Power Bench Drill with every detail for completeness in design and workmanship taken into consideration, in connection with the dimensions given above. The top of the drill base is planed off to use as a table when the regular drill table is turned to one side, thus giving a space of 16 inches between the chuck and base-table. The upper cone pulley is between two bearings, thus equalizing the strain and making the drill more powerful. The countershaft is supplied with a belt shift on the tight and loose pulley and the feed lever is manipulated with a spring arrangement to at all times automatically keep the lever where it is placed.

This Drill is particularly adapted for garages, pattern makers and machine shops where light, accurate and rapid drilling is done.

Code—Forkless. **Price**.....**$40.00**

CHAMPION POWER BENCH DRILL WITH ELECTRIC MOTOR ATTACHMENT NO. 0E

Made with Ball Bearings **For Light and Rapid Drilling**



Champion Power Bench Electrically Driven Drill represents the No. 0 Champion Power Bench Drill shown on opposite page with Electric Motor placed in such a position on the Drill, so as to give a long belt between the motor and driving pulleys of the drill.

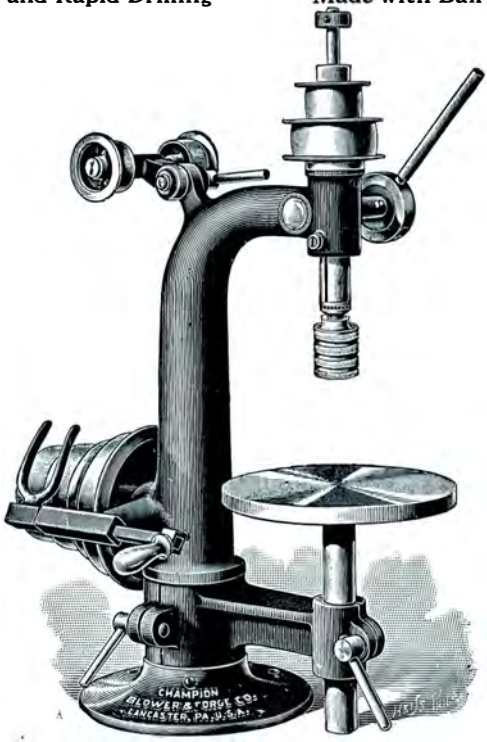
By reading description and dimensions of the Champion Power Bench Drill found on opposite page, it will be seen that this drill is very practical for Garages, Pattern-makers, and Machine Shops where light, accurate and rapid work is done.

Before ordering this drill ask your Electric Current manufacturers whether the current is Direct or Alternating. If direct get the voltage only and if alternating get cycles, phase and voltage.

No. 0E Champion Power Bench Electrically Driven Drill, for either Direct or Alternating Current, any Voltage, Weight 175 lbs. *Code—Fapo*.....**$120.00**

CHAMPION SENSITIVE BENCH DRILL
NO. 50

For Light and Rapid Drilling **Made with Ball Bearings**



The Champion Sensitive Bench Drill is substantial, strong and well-built, and is particularly adapted for light, accurate and rapid drilling, in garages, pattern and machine shops. This drill is driven by belt and with the aid of cone pulleys two separate and distinct speeds can be furnished. The countershaft is furnished with a belt shifter on the tight and loose pulley and the feed lever can be returned without affecting the position of the bit by a patented automatic device in the feed lever hub. This drill is made in the best possible manner and guaranteed in every respect.

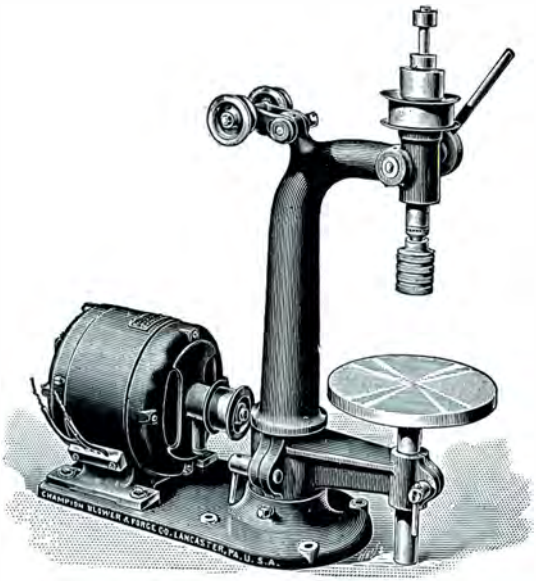
SPECIFICATIONS

Double Flange Top Cone.
Table swinging 180 degrees horizontally.
End Thrust Ball Bearing.
Adjustable Spindle Stop.
Greatest distance from spindle to table 7½ inches.
Up-and-down movement of the spindle 2½ inches.
Up-and-down movement of the table 7 inches.
Diameter of table 8 inches.
Drills to center of 10-inch circle.
Drilling capacity ½ inch.
Size of tight and loose pulley 4 x 1½ inches.
Speed of driving pulley 550 R.P.M.
Extreme height 27½ inches.

Weight 75 lbs., Fitted Complete with Champion Chuck. *Code—Fechares* $36.00
Less Chuck with Taper Spindle 30.00

CHAMPION ELECTRIC DRIVEN SENSITIVE BENCH DRILL NO. 50E

For Light and Rapid Drilling **Made with Ball Bearings**



The No. 50E Electric Driven Sensitive Bench Drill is the No. 50 drill shown on page 154, with motor suitably attached to base of the drill, giving one speed to the spindle. For full information regarding drill construction, see page 154.

SPECIFICATIONS

Table swings 180 degrees horizontally.
End Thrust Ball Bearing.
Adjustable Spindle Stop.
Greatest distance from spindle to table 7½ inches.
Up-and-down movement of the spindle 2½ inches.
Up-and-down movement of the table 7 inches.
Diameter of table 8 inches.
Drills to center of 10-inch circle.
Drilling capacity ½ inch.
Speed of Motor 1,150 R.P.M.
Extreme height 27½ inches.
Weight 135 lbs., fitted with Champion Chuck.
Code—Fetnur..... **$80.00**

CHAMPION SENSITIVE UPRIGHT DRILL NO. 51

For Light and Rapid Drilling **Made with Ball Bearings**

The Champion Sensitive Upright Floor Drill is substantial, strong and well-built, and is particularly adapted for light, accurate and rapid drilling, in garages, battery service stations, pattern and machine shops, or where a sensitive upright drill is needed.

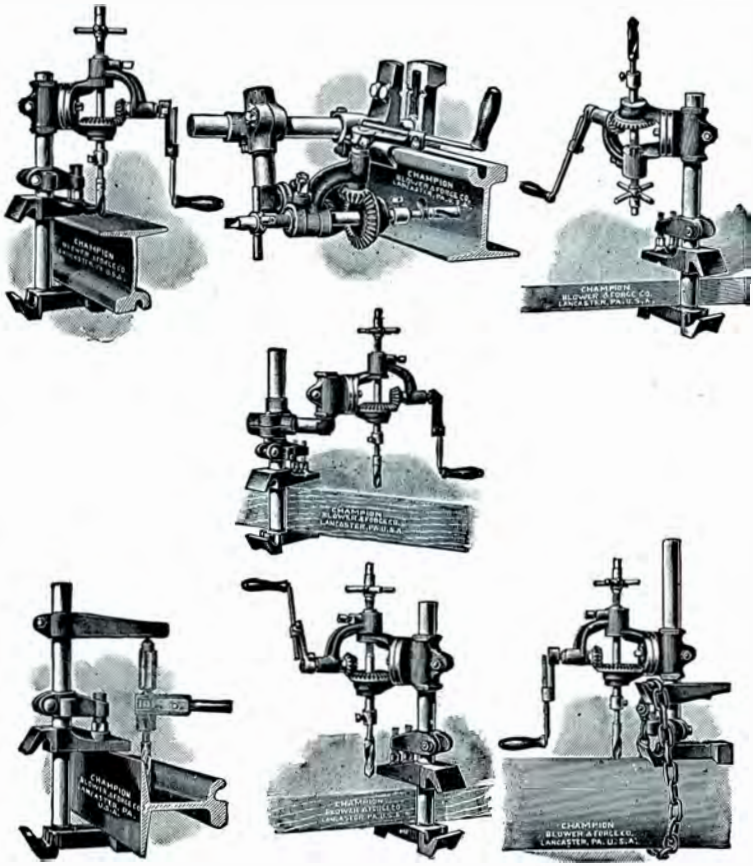
This drill is driven by a belt, and with the aid of cone pulleys two separate speeds can be obtained. The countershaft is furnished with a belt shifter on the tight and loose pulley, and the feed lever can be returned without affecting the position of the bit by an automatic device in the feed lever hub.

This drill has double-flange top cone pulley mounted on large bearings.

SPECIFICATIONS

Double Flange Top Cone.
Table Swings Full Circle.
End Thrust Ball Bearing.
Adjustable Spindle Stop.
Greatest distance from spindle to table 28½ inches.
Up-and-down movement of the spindle 2½ inches.
Up-and-down movement of the table 20½ inches.
Diameter of table 8 inches.
Drills to center of 10-inch circle.
Drilling capacity ½ inch.
Size of tight and loose pulley 4 x 1½ inches.
Speed of driving pulley 550 R.P.M.
Extreme height 60 inches.
Weight 125 lbs. fitted with Adjustable Chuck. *Code—*
Fenkist **$60.00**

CHAMPION UNIVERSAL RADIAL HAND DRILL



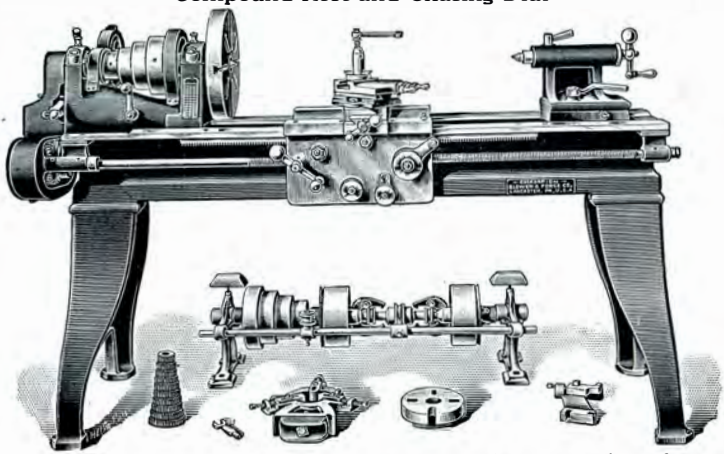
Champion Universal Radial Hand Drill is a high-grade, well-built, ball-bearing Drill designed and constructed to meet demands of a drill to drill holes in practically all positions, angles or locations where an ordinary drill can not reach. It is a very convenient, practical and profitable tool for use of contractors, steam railroads, electric railroads, bridge builders, structural steel workers, machine shops, repair shops, bridge builders and is a particularly good drill for Municipal Corporations owning their own water works, etc. While the Drill can be radiated in practically any position, it also makes a very convenient regular standard drill for straight boring. Spindle bored like Never Slip Chuck to take in ½-inch straight shank Drills.

No. 1 Champion Universal Radial Hand Drill, Capacity 1 ¼-Inch Hole, Weight 80 lbs.
Code—Formica **$60.00**

No. 2 Champion Universal Radial Hand Drill, Capacity 1½-Inch Hole, Weight 110 lbs.
Code—Forefang 90.00

THE LANCASTER 16-INCH ENGINE LATHE

Fitted with Four-Step Cone Pulley, Back Gears, Positive Geared Feed, Automatic Longitudinal and Power Cross Feed, Compound Rest and Chasing Dial



The Lancaster 16-Inch Engine Lathe is constructed for garage, machine and general repair shops, in that it is built to take care of all jobs that come into such shops. It is powerful, accurate and durable—manufactured to jigs and gauges, and all parts are interchangeable. The Lead Screw is made of special high-grade carbon steel. All sliding surfaces are accurately scraped to a bearing. The spindle and all round parts are ground for accuracy. Three changes of feed are secured by moving a handle to any one of the three locations. The gears are easily changed for cutting different threads. This Lathe is indexed to cut standard threads from 4 to 40 either right or left, including 11½-inch pipe thread, and by compounding the gears many other threads can be chased. This Lathe is equipped with compound rest, follower and steady rests, change gears, large and small face plates, double friction countershaft and wrenches, and all gears are carefully guarded. The Bed is stout and rigid, with cross braces cast at short intervals. Has three V's and one flat way to take the head stock, tail stock and carriage. The Rack is steel and cut from a solid bar. The Head Stock is massive, having a bearing of 17¼ inches on the bed, the spindle is 60-point carbon crucible spindle steel, accurately ground. Bearings are high-grade phosphor bronze, carefully scraped to fit the spindle. The Tail Stock is offset to allow the compound rest to swing parallel to the bed. The Carriage and Apron are strong and with deep bridges each cast in one piece. The Compound Rest is graduated in degrees.

DETAILED DIMENSIONS

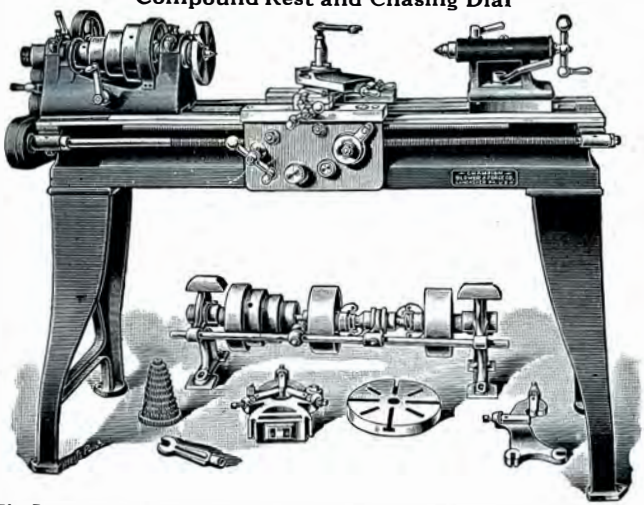
Swing over Shear.....16½ inches.
Swing over Compound Rest.....3¾ inches.
Swing over Carriage.....11 inches.
Distance between Centers, six-foot Bed 41 inches.
Front Spindle Bearing 2¾ inches in diameter, 3¾ inches long.
Rear Spindle Bearing 1 15/16 inches in diameter, 2⅞ inches long.
Hole through Spindle.....1½ inches.
Spindle Nose (8 U. S. S. Threads) 2¼ inches in diameter.
Taper of Centers.....No. 3 Morse.

Tail Spindle (Traverse 6-inch) 1⅝ inches in diameter.
Cone Pulley diameters on Lathe 3⅜, 4⅜, 6⅛, 7½ inches.
Cone Pulley diameters on Countershaft 8⅞, 7 7/16, 6⅛, 4⅜ inches.
Width of Belt.....2 inches.
Ratio of Back Gearing.....7 to 1.
Spindle Speeds.....16.
Compound Rest Travel.....3 inches.
Countershaft Driving Pulley.9 x 3½ inches.
Countershaft Speed.....200 R.P.M.
Size of Tools.....1¼ inches x ⅝ inch.

16-Inch Engine Lathe with six-foot Bed, Weight 1600 lbs. *Code—Firmera*.....$400.00
16-Inch Engine Lathe with eight-foot Bed, Weight 1775 lbs. *Code—Firmesor*.... 430.00
16-Inch Engine Lathe with ten-foot Bed, Weight 2000 lbs. *Code—Firmerest*..... 460.00

THE LANCASTER 13-INCH ENGINE LATHE

Fitted with Four-Step Cone Pulley, Back Gears, Positive Geared Feed, Automatic Longitudinal and Power Cross Feed, Compound Rest and Chasing Dial



The Lancaster 13-Inch Engine Lathe is built large and heavy to withstand all strain placed on it by the use of high-speed steel. It is powerful, accurate and durable—manufactured to jigs and gauges, and all parts are interchangeable. The Lead Screw is made of special high-grade carbon steel. All sliding surfaces are accurately scraped to a bearing. The spindle and all round parts are ground for accuracy. Three changes of feed are secured with each set of change gears by moving a handle to any one of the three locations. This Lathe is indexed to cut standard threads from 4 to 40 either right or left, including 11½-inch pipe thread. This Lathe is equipped with compound rest, follower and steady rests, change gears, large and small face plates, double friction countershaft and wrenches, and all gears are carefully guarded. The **Bed** is rigid, cross ribbed by heavy boxed braces, cast in at frequent intervals its entire length, has three V's and one flat bar for the slot guide of the head and tail stock. The rack is steel and cut from a solid bar. The **Head Stock** is massive, having a bearing of 15¼ inches on the bed, the spindle is 60 point carbon crucible spindle steel accurately ground. Bearings are high-grade phosphor bronze, carefully scraped to fit the spindle. The **Tail Stock** is offset to allow the compound rest to swing parallel to the bed, and is made of crucible steel. The **Carriage and Apron** are strong and with deep bridges each cast in one piece. The Compound Rest is graduated in degrees.

DETAILED DIMENSIONS

Swing over Shear.....13½ inches.
Swing over Compound Rest.....3¼ inches.
Swing over Carriage.....9 inches.
Distance between Center—5-Ft. Bed, 30 inches.
Front Spindle Bearing, 1¾ inches in diameter, 3¼ inches long.
Rear Spindle Bearing, 1½ inches in diameter, 2⅜ inches long.
Hole through Spindle.....¾ inch.
Spindle Nose.....1⅝ inches in diameter. 10 U. S. S. Threads.
Taper of Centers.....No. 3 Morse.
Tail Spindle.....1⅝ inches in diameter. 5-inch Traverse.
Cone Pulley diameters on lathe, 7–5¾–4½–3¼ inches.
Width of Belt.....2 inches.
Ratio of Back Gearing.....8½ to 1.
Spindle Speeds.....16.
Compound Rest Travel.....4 inches.
Cone Pulley diameters on Countershaft, 8¼–7–5¾–4½ inches.
Countershaft Driving Pulley .8 x 3¼ inches.
Countershaft Speed.....150 R.P.M.
Size of tools.....½ inch x 1⅛ inches.

13-Inch Engine Lathe, with five-foot Bed, Weight 1,100 lbs. *Code—Ferabors*....**$300.00**
13-Inch Engine Lathe, with six-foot Bed, Weight 1,200 lbs. *Code—Feraborer*.... **315.00**
13-Inch Engine Lathe, with eight-foot Bed, Weight 1,350 lbs. *Code—Feraborest*.. **340.00**
13-Inch Engine Lathe, with ten-foot Bed, Weight 1,550 lbs. *Code—Feraboramer* . **365.00**

THE LANCASTER ELECTRIC DRIVEN ENGINE LATHE

Fitted with Four-Step Cone Pulley, Back Gears, Positive Geared Feed, Automatic Longitudinal and Power Cross Feed, Compound Rest and Chasing Dial

Made in 13- and 16-Inch Sizes

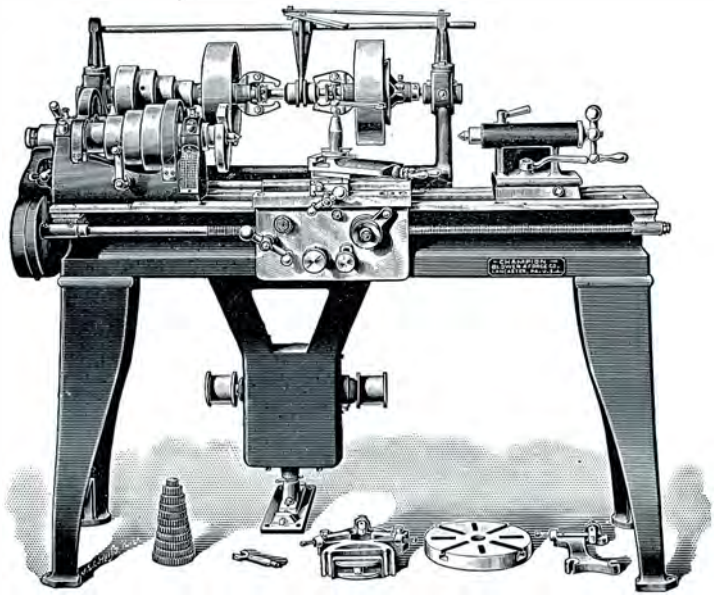


Illustration shows Lancaster Engine Lathe equipped with Electric Motor Drive.

The cast iron bracket which carries both the countershaft and motor is firmly attached to the lathe bed, and acts as a tightener for the belt between the lathe cone pulley and countershaft, and the motor can be adjusted on the bracket to tighten the belt between the motor and driving pulleys on the countershaft.

The starting, stopping and reversing of the lathe is controlled by a horizontal bar, as shown on cut. The cross belt handles the reverse direction of the lathe spindle.

16-Inch Engine Lathe, Motor Driven, with six-foot Bed, Weight 1800 lbs. *Code—Freaker* **$525.00**

16-Inch Engine Lathe, Motor Driven, with eight-foot Bed, Weight 1975 lbs. *Code—Freakest* **555.00**

16-Inch Engine Lathe, Motor Driven, with ten-foot Bed, Weight 2200 lbs. *Code—Freakene* **585.00**

13-Inch Engine Lathe, Motor Driven, with five-foot Bed, Weight 1300 lbs. *Code—Feratera* **425.00**

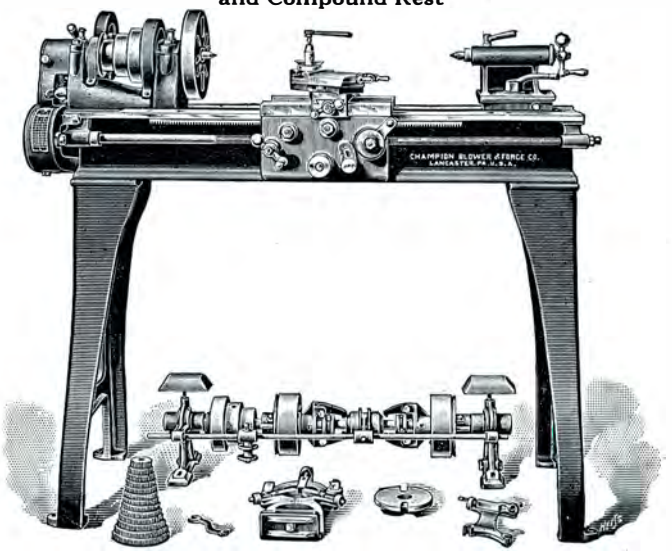
13-Inch Engine Lathe, Motor Driven, with six-foot Bed, Weight 1400 lbs. *Code—Feratesor* **440.00**

13-Inch Engine Lathe, Motor Driven, with eight-foot Bed, Weight 1600 lbs. *Code—Feraterest* **465.00**

13-Inch Engine Lathe, Motor Driven, with ten-foot Bed, Weight 1800 lbs. *Code—Feraterame* **490.00**

THE LANCASTER 10-INCH ENGINE LATHE

Fitted with Three-Step Cone Pulleys, Back Gears, Positive Geared Feed, Automatic Longitudinal and Power Cross Feed, and Compound Rest



The Lancaster 10-inch Engine Lathe is constructed for Garage, General Repair Shops and Machine Shops for manufacturing. The Lead Screw is made of special high grade carbon steel; all sliding surfaces are accurately scraped to a bearing. The spindle and all round parts are ground for accuracy. This Lathe is indexed to cut standard threads from 4 to 40 either right or left, including 11½-inch pipe thread. The Lathe is equipped with compound rest follower and steady rests, change gears, large and small face plates, double friction Countershaft and Wrenches. The Bed is rigid, cross ribbed by heavy braces, cast at frequent intervals; has three V's and one flat bar for the slot guide of the head and tail stocks. The Rack is steel and cut from the solid bar. The Head Stock is massive, having a bearing on the bed 10½ inches. The Spindle is 60-point carbon Crucible Steel, accurately ground. The Front Bearing is 2¾ inches long 1½ inches diameter. Bearings are high grade phosphor bronze, carefully scraped to fit the spindle. The Tail Stock is offset to allow the Compound rest to swing parallel to the bed and Tail Spindle is made of Crucible Steel. The Carriage and Apron are strong and with deep bridges each cast in one piece. The Compound Rest is graduated in degrees.

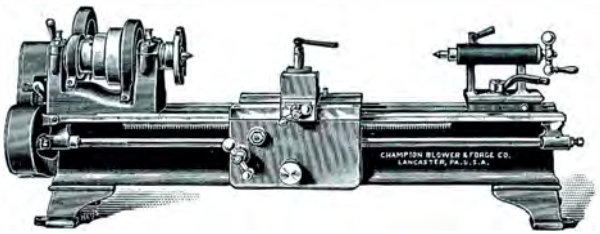
DETAILED DIMENSIONS

Swing over Shear.....10½ inches.
Swing over Compound Rest.....2¾ inches.
Swing over Carriage.....6½ inches.
Distance between Centers, 4-ft. Bed 26 ins.
Front Spindle Bearing
1½ inches dia. x 2¾ inches long.
Rear Spindle Bearing
1 1/16 inches dia. x 1¾ inches long.
Hole thro gh Spindle.....⅞ inch.
Spindle Nose
1 3/4 inches in dia. 12 U. S. S. Threads.
Tail Spindle
1⅛ inches in dia. 3 inch Traverse.
Taper of Centers.....No. 2 Morse.
Threads per inch.....4-80.
Cone Pulley Diameters on Lathe
3 3/16 inches, 4 5/16 inches, 5 7/16 inches.
Width of Belt.....1¼ inches.
Ratio of Back Gearing.....7.23 to 1.
Spindle Speeds.....12.
Compound Rest Travel.....3 inches.
Length of Carriage Bearing on Shears
12 inches.
Cone Pulley Diameters on C/S
3 3/16 inches, 4 5/16 inches and 5 7/16 inches.
Countershaft Driving Pulley 6 x 1¼ inches.
Countershaft Speed.....175 R.P.M.
Size of Tools.....⅜ x ¾.

10-Inch Engine Lathe with four-foot Bed, Weight 625 lbs. *Code—Latant*.....$190.00
10-Inch Engine Lathe with five-foot Bed, Weight 700 lbs. *Code—Latonk*..... 200.00

THE LANCASTER 10-INCH BENCH LATHE

Fitted with Three-Step Cone Pulleys, Back Gears, Automatic Longitudinal Feed and Hand Cross Feed, with Countershaft



The Lancaster 10-inch Lathe Bench is constructed for pattern and model shops, experimental work, garages, electrical repair shops or any shop where a high grade lathe is wanted.

It is built strong and powerful and is designed for the mechanic who has general repair work.

Being manufactured to jigs and gauges, all parts are interchangeable.

It is manufactured especially to give the mechanic a high grade tool at a low price, as it has all the desirable features of a high-priced engine lathe without the screw cutting attachment.

The feed rod is made of special high grade carbon steel; all sliding surfaces are accurately scraped to a bearing. The spindle and all round parts are ground for accuracy. The feed gears are easily changed and all gears are guarded. The lathe is equipped with small face plate and countershaft and wrenches.

The Bed is rigid, cross ribbed by heavy braces, cast in at frequent intervals its entire length; has three V's and one flat bar for the guide of the head and tail stocks.

The Head Stock is massive, having a bearing on the bed 10½ inches. The Spindle is 60-point carbon Crucible Steel, accurately ground. Bearings are high grade phosphor bronze, carefully scraped to fit the spindle. The Tail Stock is offset and Tail Spindle is made of Crucible Steel.

The carriage and apron are strong and with deep bridges each cast in one piece.

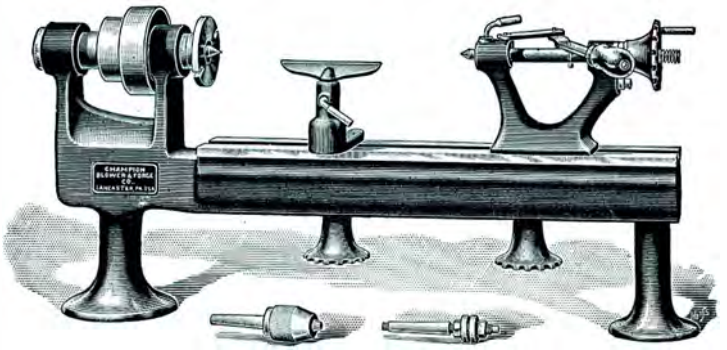
DETAILED DIMENSIONS

Swing over Shear.....10½ inches.
Swing over Carriage.....6½ inches.
Distance between Centers, 4-ft. Bed 26 inches.
Front Spindle Bearings 1½ inches dia. x 2¾ inches long.
Rear Spindle Bearing 1 5/16 inches dia. x 1¾ inches long.
Hole through Spindle.....⅞ inch.
Spindle Nose 1 7/16 inches in dia. 12 U. S. S. Threads.
Tail Spindle 1⅛ inches in dia., 3 inch Traverse.
Taper of Centers.....No. 2 Morse.

Cone Pulley Diameters on Lathe 3 3/16 inches, 4 5/16 inches, 5 7/16 inches.
Width of Belt.....1½ inches.
Ratio of Back Gearing.....7.23 to 1.
Spindle Speeds.....6.
Length of Carriage Bearing on Shears 12 inches.
Cone Pulley Diameters on C/S 3 3/16 inches, 4 5/16 inches and 5 7/16 inches.
Countershaft Driving Pulley 6 x 1¾ inches.
Countershaft Speed.....175 R.P.M.
Size of Tools.....⅜ inch x ¾ inch.

10-Inch Bench Lathe with four-foot Bed, Weight 450 lbs. *Code—Lamos*.....**$130.00**

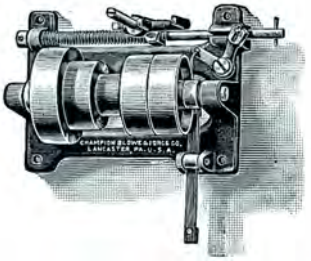
LANCASTER BALL-BEARING BENCH LATHE



The best low priced light three-speed Ball-bearing Bench Lathe for general utility and garage use, adapted for such work as turning commutators, magneto and speedometer work, polishing and other small work, etc.

Equipped with Chuck taking straight shank drills up to ¼"; also complete with buffing attachment to hold felt, wire or emery wheels.

Length of bed 24".
Distance between centers 12".
Swing 7".
Weight 45 pounds.
Lathe complete with Chuck, Arbor and Face Plate as illustrated. *Code— Bart*..... **$36.00**
Same as above with bed 36" long, Distance between centers 24", Weight 55 lbs.
Code— Bask..... **45.00**

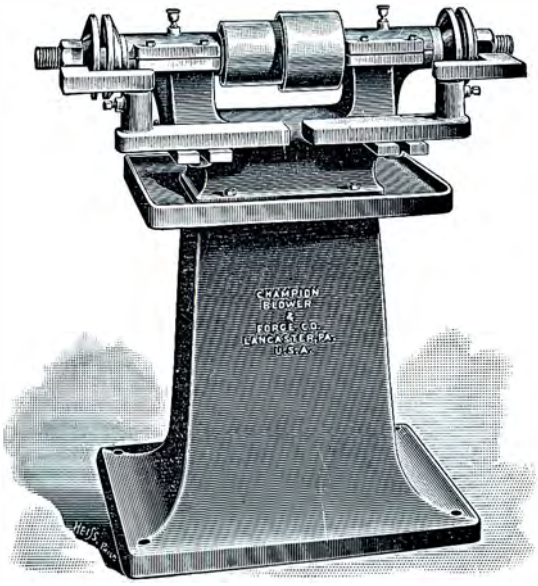


Countershaft for above—weight 15 lbs. *Code— Bant*..... **$12.00**

Slide Rest for above—weight 6½ lbs. *Code—Bab*..... **15.50**
⅛ H.P. motor will run this lathe as it is equipped with adjustable ball bearings.

NO. 20 CHAMPION GRINDER

With Ring Oil Bearings



No. 20 Champion Grinder is a very stout heavy and rigid machine. The bearings are of particularly great length. It has a capacity for wheels 18 inches in diameter with 3-inch face, 1½-inch hole. The journals are dust proof. The rests are rigid and easily adjusted. The bearings are babbitted with genuine babbitt, and furnished with ring oilers.

This machine is suitably adapted for anyone desiring a stout, heavy and well-built machine for use in foundry and machine shop.

No. 20 Champion Grinder. Capacity 18 x 3-inch Wheel, with 1½-inch Hole. Arbor to Floor 36 Inches. Size of Base 19¾ x 26 Inches. Length of Arbor 36 Inches. Diameter of Arbor 1⅝ Inches. Size of Pulley 5 and 6 x 4¼ Inches. Weight 550 lbs. Complete. *Code—Feetem*..... **$70.00**

No. 20 Champion Countershaft for above Machine. Drive Pulley 12½ Inches and 13⅜ Inches in Diameter x 4½-inch Face. Tight and Loose Pulley 10 Inches in Diameter x 3½-inch Face. Length of Shaft 30 Inches. Diameter of Shaft 1¼ Inches. Weight 130 lbs. *Code—Fetes*..... **30.00**

Guards for above Grinder for 18-inch Wheels. Weight 70 lbs...... **12.00**

NO. 1 CHAMPION COLUMN GRINDER

With Ring Oil Bearings

Made with Single Pulley or Tight and Loose Pulleys

No. 1 Champion Upright Column Grinder has been built from heavy and substantial patterns, thus making it a stiff and substantial grinder to meet all conditions of grinding and polishing in the machine shop, foundry, blacksmith shop, garage, etc., and carries wheels up to 16 x 3 inches or smaller with 1¼-inch hole.

The Champion Grinder has special long spindles and bearings. The bearings have unusually large space for the operator and for grinding large and irregular shaped castings. It is designed to grind both large and small work, as well as bicycle and automobile work, also polishing.

The bearings of the Champion Grinder are adjustable and babbitted with genuine babbitt and are provided with ring oilers, giving perfect lubrication. Each adjustable bearing has four bolts, holding them in a true line.

The Champion Grinder is supplied with rests to stand heavy work and can be easily arranged for the side or face of the wheel.

No. 1 Champion Upright Column Grinder, Capacity 16 Inches x 3 Inches, Wheel with 1¼-inch Hole, Arbor to Floor, 34 Inches, Diameter of Base, 18 Inches, Length of Arbor, 40 Inches, Diameter of Arbor, 1⅝ Inches, Size of Pulleys, 4½ Inches x 4¼ Inches. Weight Complete, 255 lbs. *Code—Fiest*..... **$30.00**

Extra for Tight and Loose Pulleys..... **3.00**

No. 1 Countershaft for above, as shown on page 175, Drive Pulley, 14 Inches in Diameter, 4-inch Face, Tight and Loose Pulleys, 6 Inches in Diameter, 4-inch Face, Length of Shaft, 30 Inches, Diameter, 1⅛ Inches. Weight 100 lbs. *Code—Fixinger*..... **17.00**

No. 1 Disc Grinding Attachment for above, Capacity 36 Inches. Weight 25 lbs.... **7.50**

Guards for above Grinder for 16-inch Wheels. Weight 55 lbs...... **9.00**

NO. 11 CHAMPION COLUMN GRINDER

With Ring Oil Bearings

No. 11 Champion Upright Column Grinder is a very substantial design for garage and general repair work, where a well-built machine is wanted in a lighter pattern. Bearings are long, well babbitted with genuine babbitt, fitted with ring oilers and oil reservoir, giving perfect lubrication. It is equipped with adjustable rests which can readily be removed, and guards. The extra long distance between the wheels permits the operator to grind or buff large pieces without coming in contact with the stand.

No. 11 Champion Upright Column Grinder. Capacity 12 x 2½ Inches. Wheel, with 1-inch Hole. Arbor to Floor 36½ Inches. Diameter of Base 14 Inches. Length of Arbor 25 Inches. Size of Pulleys 3¾ x 3 Inches. Weight 165 lbs. *Code—Funk*..... **$25.00**

NO. 10 CHAMPION COMBINATION GRINDER AND BUFFER

With Ring Oilers

No. 10 Combination Grinder and Buffer is best adapted to garage, tire service station, vulcanizing shop or general grinding and buffing work.

The bearings are babbitted with genuine babbitt, being split so wear can be taken up when necessary, and ring oilers keep this machine well lubricated.

The extended bearings firmly support the spindle, allowing it to operate free from vibration, and you will notice the exceptionally long distance between the wheels, which is particularly serviceable for wire wheel work on largest rubber tires or buffing any odd shape work.

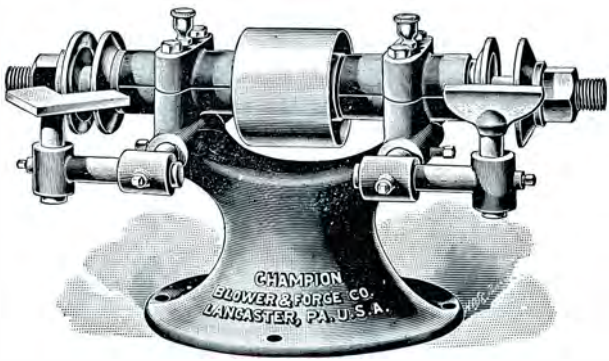
This machine is regularly furnished with wheel guard on grinder end and is always equipped with tight and loose pulleys.

No. 10 Champion Combination Grinder and Buffer. Capacity 10 x 2 Inches. Wheel with 1-inch Hole. Arbor to Floor 36 Inches. Diameter of Base 14 Inches. Length of Arbor 32 Inches. Size of Pulleys 3¾ x 3 Inches. Weight 150 lbs.
Code—Fitman **$25.00**

NO. 2 CHAMPION BENCH GRINDER

With Ring Oil Bearings

Made with Single Pulley or Tight and Loose Pulleys



No. 2 Champion Bench Grinder holds two wheels 16 inches in diameter, 2-inch face or smaller, and has ring oil bearings, which give perfect lubrication, and babbitted with genuine babbitt. They are supplied with high grade oil cups and two rests, which can be set at any angle.

This machine is the largest and most durable Bench Grinder on the market and is a very popular machine.

This machine is fitted for either bench or column use.

No. 2 Champion Bench Grinder. Capacity 16 Inches x 2 Inches, Wheels with 1¼-inch Hole. Arbor to Bench 9½ Inches. Size of Base 13 Inches x 9 Inches. Length of Arbor 25 Inches. Diameter of Arbor 1 $\frac{5}{16}$ Inches. Size of Pulley 4¾ Inches x 4 Inches. Weight 95 lbs. *Code—Femaler* **$22.00**

Extra for Tight and Loose Pulleys **3.00**

No. 2 Champion Countershaft for above shown on page 175. Drive Pulley 12 Inches in Diameter, 3½-inch Face. Tight and Loose Pulley 6 Inches in Diameter, 4-inch Face. Length of Arbor 26 Inches. Diameter 1⅛ Inches. Weight 85 lbs. *Code—Femura* **14.00**

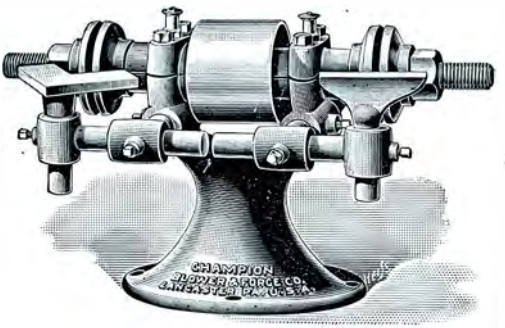
No. 2 Column for above shown on page 174. Top Plate 11 Inches x 15 Inches. Face 14 Inches x 18 Inches. Height 28 Inches. Diameter 6 Inches. Weight 105 lbs. *Code—Feniana* **15.00**

Guards for above Grinder for 16-inch Wheels. Weight 50 lbs. **8.00**

NO. 0 CHAMPION BENCH GRINDER

With Ring Oil Bearings

Made with Single Pulley or Tight and Loose Pulleys



No. 0 Champion Bench Grinder holds two wheels 12 inches in diameter and 2-inch face or smaller.

Bearings are ring oiling, giving perfect lubrication and babbitted with genuine babbitt; are well supplied with oil cups and two rests which can be set to any angle.

This Grinder is fitted for either column or bench use and is in every respect a well finished and highly machined Grinder Head.

No. 0 Champion Bench Grinder. Capacity 12 Inches x 2 Inches. Wheel with 1-inch Hole, Arbor to Bench 8 Inches, Size of Base 9 Inches x 6 Inches, Length of Arbor, 18 Inches, Diameter of Arbor, 1⅛ Inches, Size of Pulleys, 4 Inches x 3 Inches. Weight 50 lbs. *Code—Fiesus* **$15.00**

Extra for Tight and Loose Pulleys **2.50**

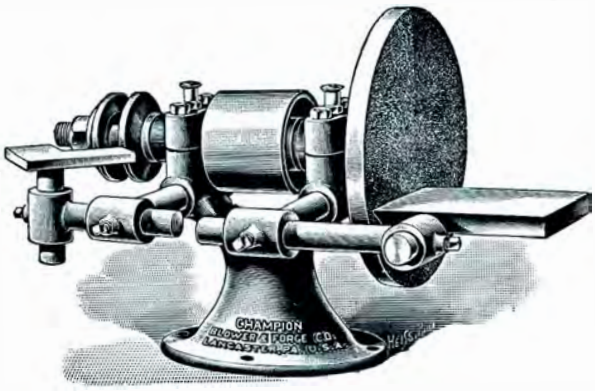
No. 0 Countershaft for above, shown on page 175, Drive Pulley, 10 Inches in Diameter, 3½-inch Face, Tight and Loose Pulleys, 5 Inches in Diameter, 3½-inch Face, Length of Shaft, 24 Inches, Diameter, 1 Inch. Weight 75 lbs. *Code—Feesa* **12.00**

No. 0 Column for above, shown on page 174, Top Plate 11 Inches x 13 Inches, Base 12 Inches x 16 Inches, Height 28 Inches, Diameter 5 Inches. Weight 70 lbs. *Code—Fecundema* **12.00**

Guards for above Grinder for 12-inch Wheels. Weight 40 lbs. **7.00**

NO. 12 CHAMPION DISK GRINDER

With Ring Oil Bearings



No. 12 Champion Disk Grinder is designed for use in shops and tool rooms, where a disk wheel will save time, over milling, planing, or filing. This machine is built to be placed on a bench or mounted on a column. This disk is securely bolted to the main spindle. The spindle bearings are adjustable and equipped with ring oilers. They are made particularly long for hard service.

The left hand side of the machine will carry emery wheels up to 10 inches in diameter, for tool grinding, and provided with adjustable rests. Each machine is equipped with two disks, making it possible to keep one in constant use.

The bearings are ring oiling, and give perfect lubrication. They are babbitted with genuine babbitt, and are well supplied with oil cups.

No. 12 Champion Disk Grinder, is furnished with Two 10-inch Disks. Capacity 10 x 2-inch Wheels, with 1-inch Hole. Arbor to Bench 8 Inches. Size of Base 9 x 6 Inches. Length of Arbor 18 Inches. Diameter of Arbor 1 Inch. Size of Pulley 4 x 3 Inches. Weight 90 lbs. *Code—Fidgeter*..... **$28.00**

No. 12 Champion Countershaft for above, shown on page 175. Drive Pulley 10 Inches in Diameter, 3½-inch Face. Tight and Loose Pulley 5 Inches in Diameter, 3½-inch Face. Length of Shaft 24 Inches, Diameter of Shaft 1 Inch. Weight 70 lbs. *Code—Feesa*..... **12.00**

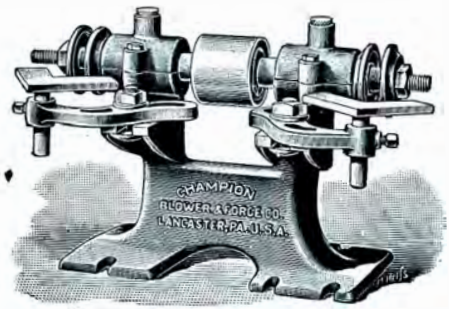
No. 12 Column for above, shown on page 174. Top Plate 11 x 13 Inches. Base 12 x 16 Inches. Height 28 Inches, Diameter 5 Inches. Weight 70 lbs. *Code —Fecundema*..... **12.00**

Cementing Press for above will Take Two Disks, and has Ball Thrust Bearings. Weight 40 lbs...... **14.00**

NO. 3 CHAMPION BENCH GRINDER

With Ring Oil Bearings

Made with Single Pulley or Tight and Loose Pulleys



No. 3 Champion Bench Grinder holds two wheels 10 inches x 1½ inches in diameter or smaller. The bearings are equipped with ring oilers.

The oil reservoirs when filled hold sufficient oil which lubricates the bearings automatically for three months. They are adjustable, avoiding the necessity of destroying the machine when the bearings show signs of wear.

The No. 3 Champion Bench Grinder is the most economical and highest grade, low priced Grinder on the market.

No. 3 Champion Bench Grinder. Capacity 10 Inches x 1½ Inches, Wheels with ¾-inch Hole, Arbor to Bench 6¾ Inches, Size of Base, 10½ Inches x 6 Inches, Size of Pulleys, 2⅜ Inches x 1¾ Inches, Length of Arbor 15 Inches, Diameter of Arbor 1 Inch. Weight 25 lbs. *Code—Felsinam*..... **$ 9.50**

Extra for Tight and Loose Pulleys..... **1.75**

No. 3 Countershaft for above, shown on page 175, Drive Pulley 9 Inches Diameter with 2-inch Face, Tight and Loose Pulley 5 Inches Diameter with 2-inch Face, Length of Shaft 21 Inches, Diameter of Shaft 1 Inch. Weight 55 lbs. *Code—Feltinger*..... **10.00**

No. 3 Column for above, shown on page 174, Top Plate 9 Inches x 11 Inches, Base 10 Inches x 12 Inches, Height 28 Inches, Diameter 3½ Inches. Weight 50 lbs. *Code—Frizzler*..... **9.00**

Guards for above Grinder for 10-inch Wheels. Weight 30 lbs...... **6.00**

No. 5 Champion Saw Gummer

With Ring Oil Bearings

No. 5 Champion Saw Gummer will carry a single wheel 12 inches in diameter and 1¼-inch face or smaller. It has extra long bearings, babbited with genuine babbitt and equipped with ring oilers, giving perfect lubrication. It is fitted with dust proof collars, and an adjustable rest.

This Gummer is particularly serviceable as a Saw Gummer or wherever a single wheel grinder can be used.

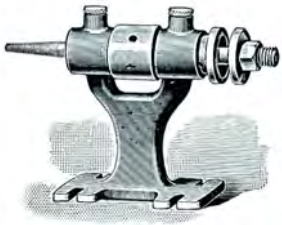
No. 5 Champion Saw Gummer, Capacity 12 Inches x 1¼-inch Wheel with ¾-inch Hole. Arbor to Bench 7 Inches. Size of Base 9½ Inches x 7¾ Inches. Length of Arbor 13⅞ Inches. Diameter of Arbor ⅞ Inch. Size of Pulley 4 Inches x 3 Inches. Weight 30 lbs. *Code—Federality* ..... **$ 7.00**

No. 5 Champion Countershaft for above, shown on page 175. Drive Pulley 10 Inches in Diameter, 3-inch Face. Tight and Loose Pulley 5 Inches in Diameter, 3½-inch Face. Length of Shaft 24 Inches, Diameter 1 Inch. Weight 70 lbs. *Code—Fcesarat* **12.00**

CHAMPION BENCH GRINDER AND POLISHING HEAD

With Ring Oil Bearings

No. 4.



No. 6.

No. 4 Champion Bench Grinder is adapted for jewelry and dental use, and shoe manufacturing, and all work where light grinding is done.

This Grinder will hold two wheels 6 inches in diameter with 1-inch face. It is supplied with Ring Oil Bearings. The oil chambers surrounding these bearings when filled hold oil which lubricates the bearings automatically for months.

No. 6 Champion Polishing Head will hold two wheels, one emery and one polishing, 6 inches in diameter, 1-inch face, or smaller. This spindle has a thread 3 inches long on the one end and the regular emery wheel attachment on the other. The bearings are of the Ring Oiling type. The Oil Reservoir when filled holds sufficient oil to lubricate the bearings for three months.

For those desiring a polishing head and emery wheel combined for handling medium work, we know of no better machine.

No. 4 Champion Bench Grinder. Capacity 6 Inches x 1-inch Wheels with $\frac{5}{8}$-inch Hole. Length of Arbor 10 Inches. Arbor to Bench $5\frac{1}{8}$ Inches. Size of Base $5\frac{1}{2}$ Inches x $3\frac{1}{2}$ Inches. Size of Pulley 2 Inches x $1\frac{5}{8}$ Inches. Diameter of Arbor $\frac{3}{4}$ Inch. Weight 10 lbs. *Code—Feesley* **$5.00**

No. 4 Countershaft for No. 4 or No. 6 Champion Grinder, shown on page 175. Drive Pulley 8 Inches in Diameter, $1\frac{3}{4}$-inch Face. Tight and Loose Pulley $3\frac{3}{4}$ Inches in Diameter with $1\frac{3}{4}$-inch Face. Length of Shaft 17 Inches, Diameter of Shaft $\frac{7}{8}$ Inch. Weight 50 lbs. *Code—Fedairy* **8.00**

No. 4 Column for No. 4 or No. 6 Champion Grinder, shown on page 174. Top Plate 6 Inches x 8 Inches, Face 9 Inches x 12 Inches. Height 28 Inches. Diameter 3 Inches. Weight 30 lbs. *Code—Federlence* **8.00**

No. 6 Champion Bench Polishing Head. Capacity 6 Inches x 1-inch Wheels with $\frac{5}{8}$-inch Hole. Length of Arbor 10 Inches. Size of Base $5\frac{1}{2}$ Inches x $3\frac{1}{2}$ Inches. Arbor to Bench $5\frac{1}{8}$ Inches. Size of Pulleys 2 Inches x $1\frac{5}{8}$ Inches. Diameter of Arbor $\frac{3}{4}$ Inch. Weight 10 lbs. *Code—Felworthy* **6.00**

CHAMPION COLUMN

FOR MOUNTING BENCH GRINDERS

Champion Columns are made in four sizes, suitable for the various Champion Bench Grinders. This column has a rib around the top plate to prevent tools from falling off. It is stoutly built, rigid and gives proper height for grinding to the various bench grinders.

It will be found a great deal more economical to mount bench grinders on columns than any temporary mounting that can be used.

No. 0 Champion Column, Suitable for No. 0 and No. 12 Bench Grinder. Top Plate 11 x 13 Inches, Base 12 x 16 Inches, Height 28 Inches, Diam. 5 Inches. Weight 70 lbs. *Code—Fecundema* **$12.00**

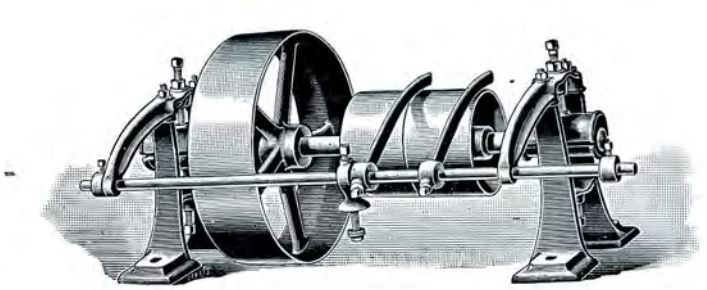
No. 2 Champion Column, Suitable for No. 2 Bench Grinder. Top Plate 11 x 15 Inches, Base 14 x 18 Inches, Height 28 Inches, Diam. 6 Inches. Weight 105 lbs. *Code—Feniana* **15.00**

No. 3 Champion Column, Suitable for No. 3 Bench Grinder. Top Plate 9 x 11 Inches, Base 10 x 12 Inches, Height 28 Inches, Diam. 3½ Inches. Weight 50 lbs. *Code—Frizzler* **9.00**

No. 4 Champion Column, Suitable for No. 4 and No. 6 Bench Grinder. Top Plate 6 x 8 Inches, Base 9 x 12 Inches, Height 28 Inches, Diam. 3 Inches. Weight 30 lbs. *Code—Federlence* **8.00**

CHAMPION COUNTERSHAFTS

FOR USE WITH CHAMPION GRINDERS



Champion Countershafts are constructed stout and rigid to stand constant service. The bearings are large, babbitted with genuine babbitt, and furnished with an oil reservoir of sufficient size to carry oil supply for three months' usage. It is furnished with a plain belt shifter.

No. 20 Champion Countershaft Suitable for No. 20 Champion Grinder. Drive Cone Pulley 12½ x 13⅝ Inches in Diameter, 4½-inch Face. Tight and Loose Pulley 10 Inches in Diameter, 3½-inch Face. Length of Shaft 30 Inches, Diameter 1¼ Inches. Weight 130 lbs. *Code—Fetes* **$30.00**

No. 1 Champion Countershaft Suitable for No. 1 Champion Grinder. Drive Pulley 14 Inches in Diameter, 4-inch Face. Tight and Loose Pulley 6 Inches in Diameter, 4-inch Face. Length of Shaft 30 Inches, Diameter 1⅛ Inches. Weight 100 lbs. *Code—Fixinger* **17.00**

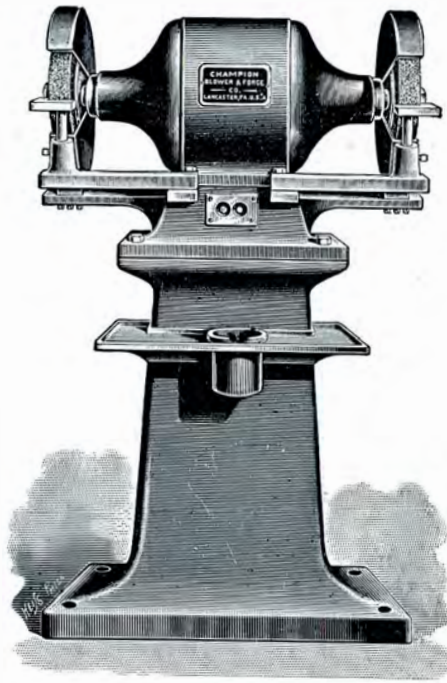
No. 2 Champion Countershaft Suitable for No. 2 Champion Grinder. Drive Pulley 12 Inches in Diameter, 3½-inch Face. Tight and Loose Pulley 6 Inches in Diameter, 4-inch Face. Length of Shaft 26 Inches, Diameter 1⅛ Inches. Weight 85 lbs. *Code—Femura* **14.00**

No. 0 Champion Countershaft Suitable for No. 0 or No. 5 Champion Grinder. Drive Pulley 10 Inches in Diameter, 3½-inch Face. Tight and Loose Pulley 5 Inches in Diameter, 3¼-inch Face. Length of Shaft 24 Inches, Diameter 1 Inch. Weight 75 lbs. *Code—Fees* **12.00**

No. 3 Champion Countershaft Suitable for No. 3 Champion Grinder. Drive Pulley 9 Inches in Diameter, 2-inch Face. Tight and Loose Pulley 5 Inches in Diameter, 2-inch Face. Length of Shaft 21 Inches, Diameter 1 Inch. Weight 55 lbs. *Code—Feltinger* **10.00**

No. 4 Champion Countershaft Suitable for No. 4 and No. 6 Champion Grinder. Drive Pulley 8 Inches in Diameter, 1¾-inch Face. Tight and Loose Pulley 3¾ Inches in Diameter, 1¾-inch Face. Length of Shaft 17 Inches. Diameter of Shaft ⅞ Inch. Weight 50 lbs. *Code—Fedairy* **8.00**

THE CHAMPION HEAVY DUTY ELECTRIC-DRIVEN FLOOR GRINDER



The Champion Heavy Duty Electric Driven Floor Grinder is the Champion Heavy Duty Electric Driven Bench Grinder shown on the opposite page, Mounted on Pedestal. The Pedestal is fitted with suitable Tool Rack and like the Champion Electric Driven Bench Grinder is specially built for heavy duty and constant service. No Emery Wheels furnished.

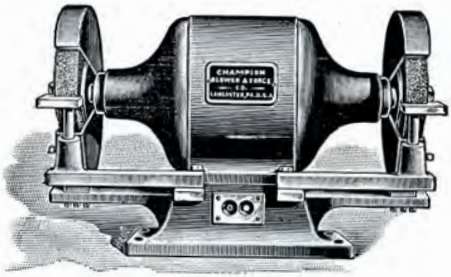
No. 610 Champion Heavy Duty Electric Driven Floor Grinder, Capacity 8 x ¾-inch Wheels, with ⅝-inch Hole. Weight 380 lbs. *Code—Facton*..... **$140.00**

No. 611 Champion Heavy Duty Electric Driven Floor Grinder, Capacity 10 x 1-inch Wheels, with 1-inch Hole. Weight 420 lbs. *Code—Fandango*..... **200.00**

No. 612 Champion Heavy Duty Electric Driven Floor Grinder, Capacity 12 x 1½-inch Wheels, with 1-inch Hole. Weight 635 lbs. *Code—Faillins*..... **250.00**

No. 613 Champion Heavy Duty Electric Driven Floor Grinder, Capacity 14 x 2-inch Wheels, with 1¼-inch Hole. Weight 700 lbs. *Code—Fail*..... **300.00**

THE CHAMPION HEAVY DUTY ELECTRIC-DRIVEN BENCH GRINDER



The Champion Heavy Duty Electric Driven Bench Grinder is recommended for the heaviest kind of grinding within the range of its capacity, as well as buffing and polishing. The Motor supplied is of ample horse power to take care of Emery Wheels to the capacity indicated, is fully enclosed and is equipped with two adjustable tool rests and wheel guards and is supplied with suitable Switch for operating the Motor. Emery Wheels, however, are not supplied with the machine. No Emery Wheels furnished.

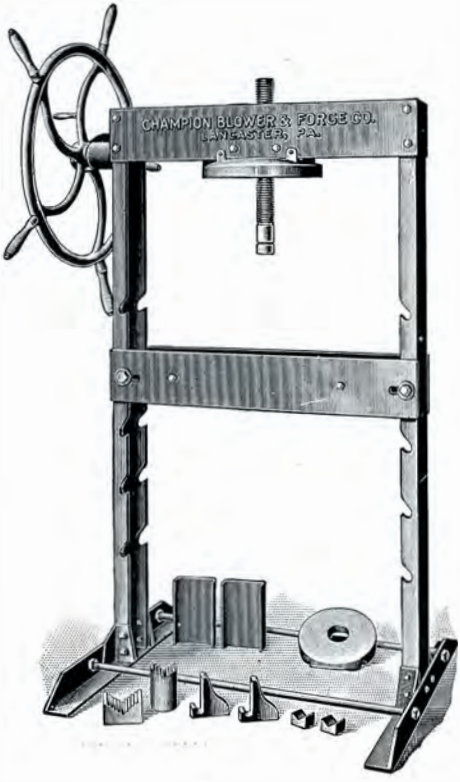
No. 600 Champion Heavy Duty Electric Driven Bench Grinder, Capacity 8 x ¾-inch Wheels, with ⅝-inch Hole. Weight 225 lbs. *Code—Faczila*..... **$112.50**

No. 601 Champion Heavy Duty Electric Driven Bench Grinder, Capacity 10 x 1-inch Wheels, with 1-inch Hole. Weight 265 lbs. *Code—Factitamus*..... **170.00**

No. 602 Champion Heavy Duty Electric Driven Bench Grinder, Capacity 12 x 1½-inch Wheels, with 1-inch Hole. Weight 400 lbs. *Code—Facianata*..... **215.00**

No. 603 Champion Heavy Duty Electric Driven Bench Grinder, Capacity 14 x 2-inch Wheels, with 1¼-inch Hole. Weight 450 lbs. *Code—Fabaltjes*..... **240.00**

CHAMPION 30-TON PRESS



The most powerful hand press manufactured—for garage and shop use; leverage 1500 to 1. One hundred pounds exerted on hand wheel develops seventy-five tons pressure on screw, making it possible to press, straighten or pull all classes of work for garage and machine shop.

Full equipment comes with each machine as illustrated.

The hand wheel is geared 3 to 1—with heavy enclosed bevel gears operating a 2-inch diameter 4-pitch Acme screw.

The Champion 30-ton press, being geared 3 to 1, gives the operator three times the power with the same effort or will do the same work with one-third the effort.

The hand wheel weighing 57 pounds, is used as a fly wheel to run the spindle up or down quickly, acting as a quick-return—a feature no other press has—saving time and labor.

The table can be raised or lowered by one man—without pulling bolts or pins out—by merely lowering or raising one side at a time in notch desired. This table is heavier and stronger than ordinary presses and the bolted frame acts as a safety device in case press is overtaxed.

SPECIFICATIONS

Built of 5-inch Channel Steel Uprights.

Cross Bars 6 inches wide, ⅝-inch thick.

Height to top frame 65 inches.

Width between uprights 32 inches.

Up-and-down travel of spindle 9 inches.

Occupies floor space 36 x 39 inches.

Weight 555 lbs. *Code—Presser*. **$80.00**

CHAMPION ARBOR PRESS NO. 4

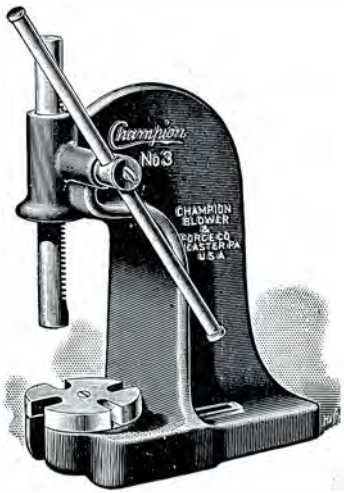
No. 4 Champion Arbor Press is especially adapted where a large and heavy floor Arbor Press is needed in factories, machine shops and garages. Frame is built of heavy cast iron. Ram and Pinion are steel—heat treated. Hand lever is adjustable for large and small work, and is furnished with a counter-balance. The table is adjusted by means of a screw—permitting it to remain where placed at all times.

The babbitted cushion on the base protects the mandrel when falling. The ring prevents the mandrel or shaft from falling lengthwise.

SPECIFICATIONS

Diameter of work	**18 inches.**
Largest Mandrel	**3 inches.**
Size of Table	**10 $\frac{5}{8}$ inches.**
Greatest distance from Table to Ram	**29 inches.**
Size of Ram	**22 inches x 2 $\frac{3}{16}$ inches.**
Floor Space	**25 inches x 33 inches.**
Height	**62 inches.**
Leverage	**60 to 1.**
Weight	**1300 lbs.**
Code—Prince	**$150.00**

CHAMPION ARBOR PRESS NO. 3



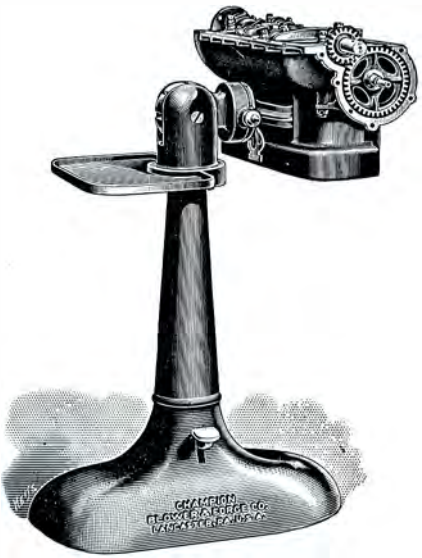
The No. 3 Champion Arbor Press is the popular size, and best adapted for use in factories, machine shops and garages, and is designed to mount on the bench or on a lathe bed.

The frame is built of cast iron; the ram and pinion of steel, hardened and heat-treated; the hand lever is adjustable for large and small work.

SPECIFICATIONS

Diameter of work	**12 inches.**
Largest Mandrel	**1½ inches.**
Size of Table	**7 inches.**
Greatest Distance from Table to Ram	**11 inches.**
Size of Ram	**1¾ inches x 17 inches.**
Floor Space	**8¼ inches x 19 inches.**
Height	**23 inches.**
Leverage	**45 to 1.**
Weight	**160 lbs.**
Code— Prant	**$32.00.**

THE CHAMPION MOTOR STAND



The Champion Motor Stand for Ford, Chevrolet and Dort motors is the most substantial, handy, universal motor stand on the market today.

It stands solid and firm on its own base and the motor removed from the chassis can be securely fastened by means of a yoke and spindle in the shortest time possible; the yoke and spindle fastened by a nut and washer.

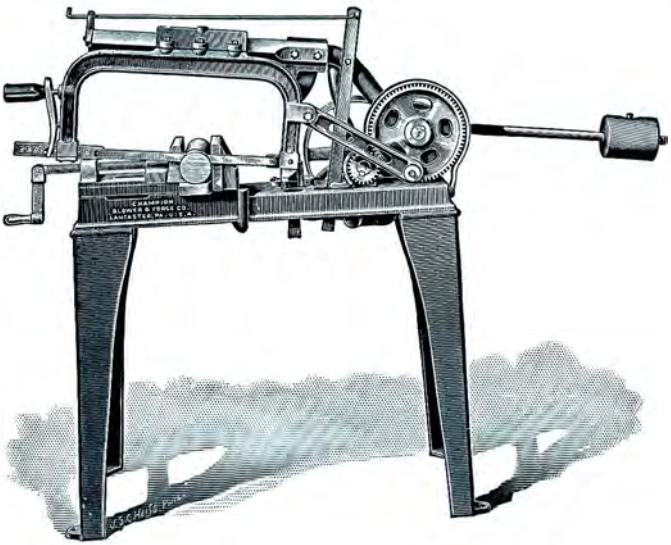
The motor can then be placed in any one of forty positions, so that the mechanic can work on the motor top, bottom, sides and the ends, a feature not found on the other motor stands on the market today. This motor stand can be furnished either stationary or movable with caster.

SPECIFICATIONS

Floor Space.....**16 inches x 26¼ inches.**
Height.....**35 inches.**
Weight.....**165 lbs.**
Code—Gamad.....**$30.00**

THE CHAMPION IMPROVED POWER HACK SAW MACHINE No. 2

Capacity 6 Inches x 6 Inches



The Champion No. 2 Power Hack Saw Machine combines many improved features, enabling it to saw fast and straight with maximum life to the saw blade.

It has the following important features:

A swivel vise cutting to an angle of 45 degrees.

Adjustable gravity feed by means of a weight—reducing the breaking or buckling of saw blades to a minimum.

An automatic shut-off which instantly stops the machine when the sawing of material is completed.

A positive clutch—simply constructed—preventing complicated parts to get out of order.

Driven by accurately cut gears, requiring a narrow belt and positive drive with less power.

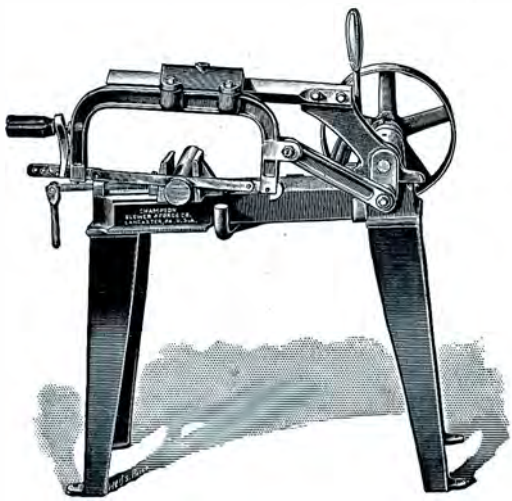
An attachment to automatically lift the saw blade on return stroke and gradually replace the blade in contact with the work on cutting stroke, thereby increasing the cutting life of the blade, and reducing to a minimum the breakage.

DETAILED DIMENSIONS

Length of blades 8 inches, 12 inches or 14 inches.
Stroke of Blade 6 inches.
Cutting Capacity 6 inches x 6 inches.
Driving Pulley 9 inches diam. x 2¼ inches face.
Floor Space 36 inches x 18 inches.
Vise Jaws 3⅜ inches high x 5¼ inches wide x 6 inches opening.
Geared 3 to 1.
Speed of Pulley—120 to 180 R.P.M.
Weight 245 pounds.
Code—Benter.....**$60.00.**

THE CHAMPION
IMPROVED POWER HACK SAW MACHINE
No. 1

Capacity 4 Inches x 4 Inches



The Champion No. 1 Power Hack Saw Machine is a well-made, rugged, low-priced Hack Saw, for light work in machine shops and garages, also for construction work. Will cut fast and straight.

Equipped with positive clutch, simply constructed, preventing complicated parts getting out of order.

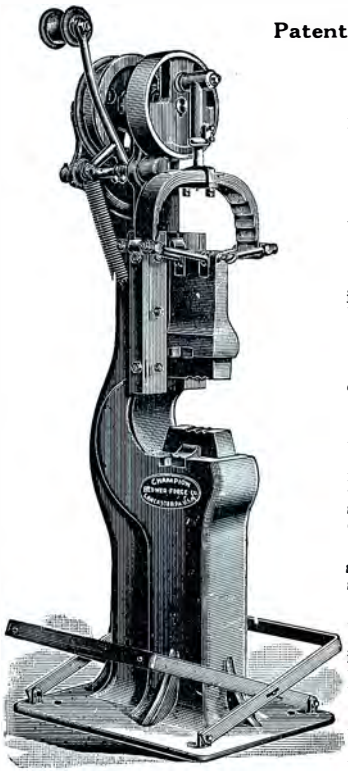
Is equipped with automatic shut-off which instantly stops the machine when the sawing of the material is completed.

Made with adjustable bearings so wear can be taken up when necessary.

Length of Blades 8 inches to 10 inches.
Stroke of Blade 6 inches.
Cutting capacity 4 inches x 4 inches.
Drive Pulley 9 inches diam. x 2½ inches face.
Floor space required 24 inches x 10 inches.
Vise Jaws 2⅜ inches high x 3⅝ inches wide x 4¼ inches opening.
Speed of Pulley 40 to 60 R.P.M.
Weight 110 lbs. *Code— Benton*..... **$30.00**

HERCULES "PATENTED" POWER HAMMER

With Flexibility in Stroke of a Hammer in a Mechanic's Hand



Made in Two Sizes
Patented July 1, 1902, No. 703,737

Hercules "Patented" Power Hammer is made in two sizes: No. 0 with Ram weighing 30 pounds, and No. 1 with Ram weighing 65 pounds. They contain all the good features of the best Hammer ever built, and are superior to any of the high priced ones, and sell at a moderate figure.

The frame and anvil are cast in one solid piece, therefore insures perfect alignment of the dies and a solid anvil, giving rigidity and solidity for the reception of severe and rapid blows.

The position of the dies is such that there is no limit to the length of the bar which can be worked.

They are double-sided Hammers, and can be used as well from one side as the other. They can be placed between two fires, and operated equally as well from either fire by a double treadle.

The control of these Hammers is so perfect that the blow can be made absolutely at the will of the operator, from a gentle stroke to a rapid succession of mighty blows, and material to its full capacity can be forged down to the size of a horse shoe nail without any change of adjustment.

The friction for stopping the Hammers is such that the operator can strike one blow and stop with the Hammer on the up-stroke.

The Hammer Head and Ram stand out from the main part of the frame, are not covered up to obscure the work of the operator, which is a great advantage; also in forging iron with an angle in it, you can get in very close to the corner.

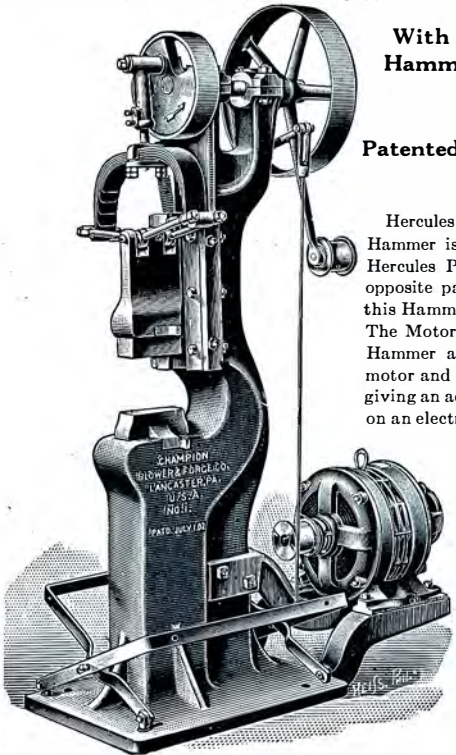
The height of the frame is such that a tire three feet in diameter can be welded, and it will weld a tire 4 inches wide and 1 inch thick very easily.

No. 0 Hercules "Patented" Power Hammer, with one regular set of dies for plow work, upper die 3 x 1½ ins., lower die 3 x 2 ins. Size of base of Hammer 18 x 25 ins. Height over all 5 ft. 4 ins. Weight of ram 30 lbs. Pulley 9 x 2¼ ins. Speed 400 R.P.M. Capacity 2 ins., square or round. 1 H.P. required to operate same. Weight 1,100 lbs. *Code—Formage*..... **$150.00**

No. 1 Hercules "Patented" Power Hammer, with one set of dies 2½ x 6½ ins., with plain surface 2½ x 3 ins., and two plain grooves and one tapering groove across one end for forging round iron, straight and tapering. Size of base of Hammer 20 x 27 ins. Height over all 5 ft. 8 ins. Weight of ram 65 lbs. Pulley 10 x 2½ ins. Speed 300 R.P.M. Capacity 2½ ins. round or square. 2 H.P. required to operate same. Weight 1,400 lbs. *Code—Figon*..... **200.00**

Any ordinary shaped dies can be furnished instead of regular dies if specially ordered. Extra dies for special work will be charged extra.

HERCULES "PATENTED" ELECTRICALLY DRIVEN POWER HAMMER



With Flexibility in Stroke of a Hammer in a Mechanic's Hand

Made in Two Sizes

Patented July 1, 1902, No. 703,737

Hercules Patented Electrically Driven Power Hammer is identical in every detail with the Hercules Patented Power Hammer shown on opposite page; the only difference being that this Hammer is operated by an electric motor. The Motor is placed in such a position on the Hammer as to give a long belt between the motor and the driving pulleys of the Hammer, giving an advantage in power not usually found on an electrically driven Hammer.

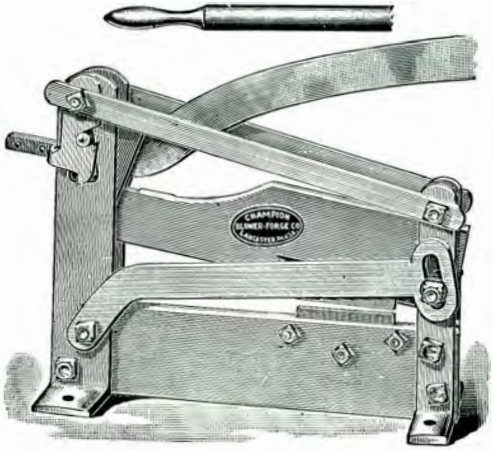
This Hammer is furnished with a switch for starting and stopping the motor.

Before ordering a Hercules "Patented" Electrically Driven Power Hammer, ask your electric current manufacturer whether the current is direct or alternating and the voltage. If alternating, the cycles or alternations and phase.

No. 0E Hercules "Patented" Electrically Driven Power Hammer, any Current and Voltage. Has one Regular Set of Dies for Plow Work, Upper Die 3 x 1½ Ins., Lower Die 3 x 2 Ins. Size of Base of Hammer, 18 x 25 Ins. Height over all, 5 Ft. 4 Ins. Weight of Ram, 30 lbs. Pulley, 9 x 2½ Ins. Speed, 400 R.P.M. Capacity, 2 Ins., Square or Round. Weight 1,385 lbs. *Code—Firstree* **$315.00**

No. 1E Hercules "Patented" Electrically Driven Power Hammer, any Current and Voltage. Has One Set of Dies 2½ Ins. x 6½ Ins. with Plain Surface 2½ Ins. x 3 Ins., and Two Plain Grooves and One Tapering Groove Across One End for Forging Round Iron, Straight and Tapering. Size of Base of Hammer, 20 Ins. x 27 Ins. Height over all, 5 Ft. 8 Ins. Weight of Ram, 65 lbs. Pulley, 10 x 2½ Ins. Speed, 300 R.P.M. Capacity 2½ Ins., Round or Square. Weight 1,725 lbs. *Code—Filtype* **400.00**

THE CHAMPION
WROUGHT IRON AND STEEL SHEAR



The Champion Shear has been manufactured by us at the request of a great many of our best customers. This Shear has been manufactured in Cleveland, Ohio, for many years, but its manufacture has been discontinued owing to its being entirely foreign to their regular business. The superiority of this Shear can be evidenced in the best possible manner by the fact that at least 75% of the Iron and Steel dealers of the United States have for many years, and are today using the Cleveland Shear to cut their stock in their stores. The Champion Shear is made of Wrought Iron and the highest grade Steel throughout, there being not a single piece of cast iron or malleable castings used in its entire construction. This is conclusive proof that it will stand up without breakage under the work that we claim and fully guarantee for it.

No. 1 Champion Shear, Weight 255 lbs., has 6-inch knives, $\frac{3}{8}$ inch thick, will cut 4-inch by $\frac{1}{2}$-inch flat iron, and 1-inch round or square iron. *Code—Fikar*..... **$70.00**

Extra Knives for above per pair..... **6.00**

No. 2 Champion Shear, Weight 255 lbs., has 12-inch knives, $\frac{1}{2}$ inch thick, will cut 4-inch by $\frac{1}{2}$-inch flat iron, and 1-inch round or square iron, also will cut plow steel from 6 to 10 inches wide. *Code—Fikene*..... **80.00**

Extra Knives for above per pair..... **8.00**

THE CHAMPION STEEL PUNCHES

The Champion Steel Punches are built entirely of steel; the frame being one piece of steel plate and the working parts of the Punch steel forging, which in every respect makes a high grade tool. On account of the breakage-proof, compact and rigid construction this all-steel punch is far superior to the cast iron and cast steel machines on the market. The working parts of the machine are designed to cause the least friction of the eccentric and journal bearings, therefore is easily handled. The punches are fastened by a key and the machine furnished with removable die holders so that they can be easily taken out.

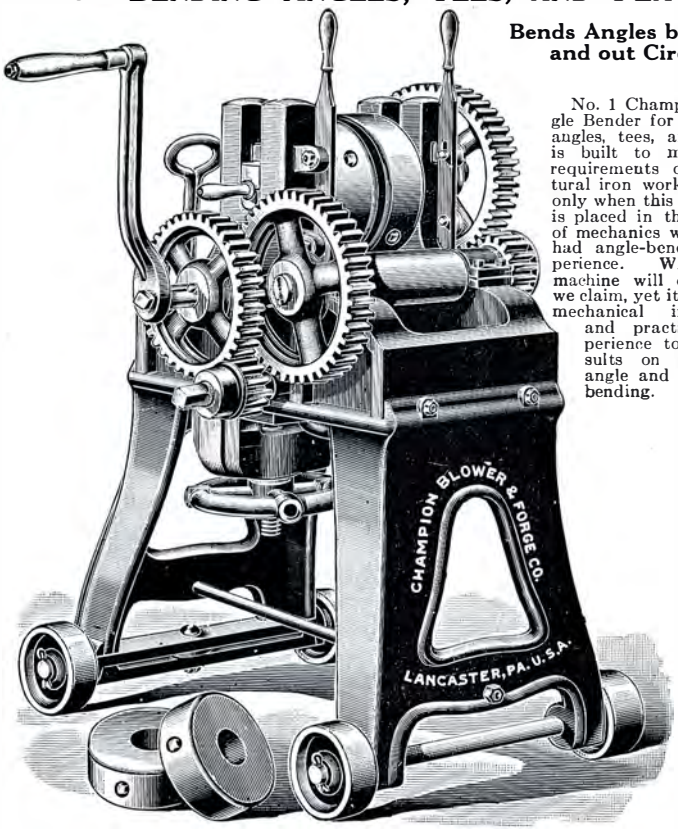
No. 1 Champion Steel Punch, Capacity $\frac{5}{16}$-Inch Hole in $\frac{1}{4}$-Inch Material, Throat $2\frac{3}{4}$ Inches, Weight 30 lbs. *Code—Fingard*..... **$ 50.00**

Extra Punches and Dies per set..... **2.00**

No. 2 Champion Steel Punch, Capacity $\frac{5}{8}$-Inch Hole in $\frac{3}{8}$-Inch Material, Throat $6\frac{1}{16}$ Inches, Weight 190 lbs. *Code—Finken*..... **120.00**

Extra Punches and Dies per set..... **4.00**

CHAMPION ANGLE BENDER FOR BENDING ANGLES, TEES, AND FLATS



Bends Angles both in and out Circle

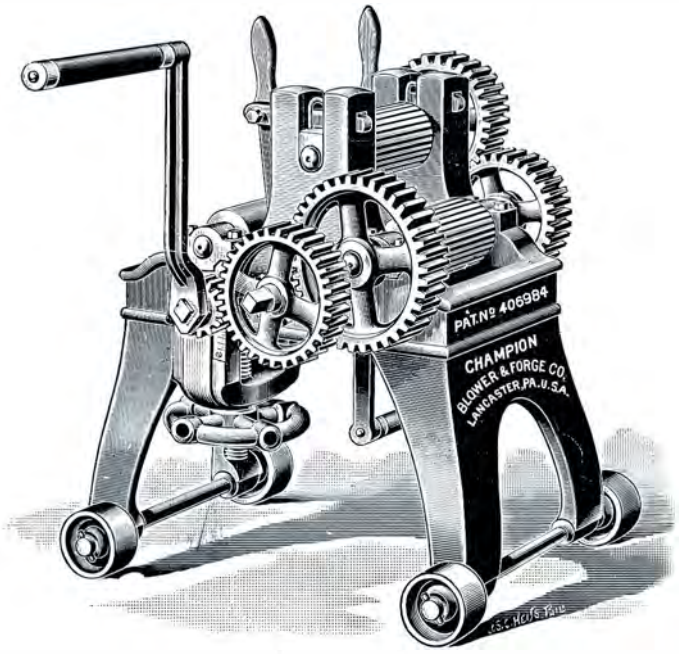
No. 1 Champion Angle Bender for bending angles, tees, and flats, is built to meet the requirements of structural iron workers, but only when this machine is placed in the hands of mechanics who have had angle-bending experience. While this machine will do what we claim, yet it requires mechanical ingenuity and practical experience to get results on intricate angle and tee iron bending.

Since the machine is not sold at a price sufficiently high to meet the expense of personal instruction, we can only guarantee what can be accomplished with the machine when operated by a mechanic that knows the complication resulting from angle or tee iron bending. The rolls are compounded 14 to 1, making it a powerful machine. The Bender stands on truck wheels and can be moved about the plant, giving it the advantage of being placed where the work is to be done. This Bender is sold equipped to bend 1-inch, 1½-inch and 2-inch angles or tees to a 18-inch radius, 2½- and 3-inch angles or tees to a 30-inch radius, 3½-inch angles or tees to a 36-inch radius and 4-inch angles or tees to a 60-inch radius, not over ½ inch in thickness, to either in or out circle, 8 x 1-inch flats.

We do not guarantee to bend angles and tees without curling.

No. 1 Champion Angle Bender fitted complete for Bending 1-, 1½-, 2-, 2½-, 3-, 3½-, and 4-Inch Angles or Tees and 8 x 1-Inch Flat, complete with Two Cranks, Weight 1,460 lbs. *Code—Feildort* **$350.00**
Hand and Power combined, extra **40.00**

THE CHAMPION
NEW CENTURY TIRE BENDER



Patent No. 406,984.

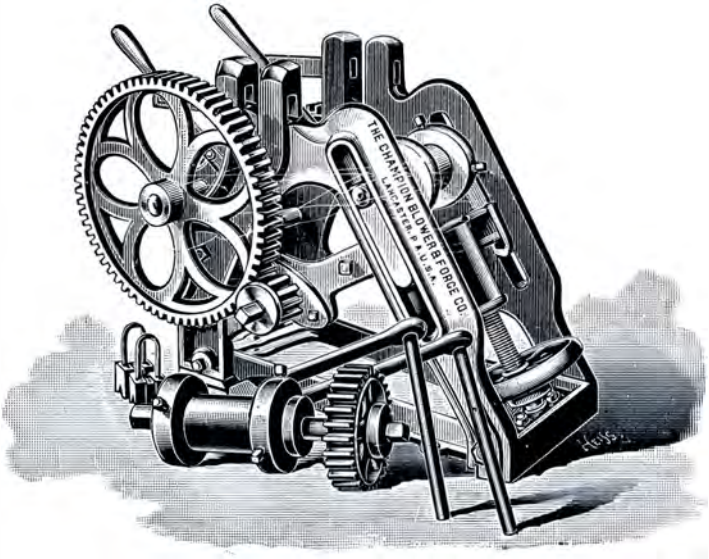
The Champion New Century Tire Bender has been designed to bend all sizes of steel and iron tires up to 6 x 1¼ inches. This Bender is compounded in its gearing 14 to 1, making it the most powerful Tire Bender manufactured. The centre roll lifts out for removing the tire from the Bender after being bent. The greatest time saving advantage in lifting the center roll to take the tire out of the Bender, is that the collars may stay in place on the rolls until all the tires in the set are bent. Another great advantage is the placing of gears at each end of the roll, equalizing the strain over the entire Bender. Taking the bent tire out of the machine the center roll is removed in an instant by drawing the two levers attached to the two wedge-shaped clamps about 6 inches. The Bender has two speeds for light or heavy work; both are worked from either side or both sides at the same time. The rolls are 4 inches in diameter, made from a solid piece of steel, corrugated and hardened. The Bearings are long and heavy, with ample adjustment for years of wear. The adjusting yoke and roll for large or small tires is simple and practical. If the tire is in the Bender, a lever may be employed in the rim of the hand wheel for raising the roll. The adjusting roll is supplied at each end with a graduated indicator with a steel point showing the size of tire being bent.

No. 1 Champion New Century Tire Bender, Weight 940 lbs., Bends Tires up to 6 x 1¼ Inches, Complete with Collars and Two Cranks. *Code—Feilstaub*.....**$200.00**

Hand and Power Combined, extra. *Code—Feilstine*..... **40.00**

THE CHAMPION "COLUMBIAN" TIRE BENDER

Patent No. 406,984



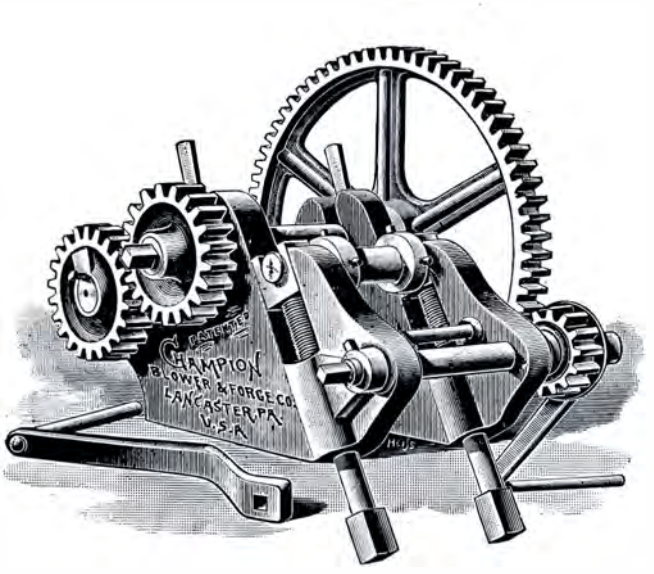
The Champion "Columbian" Tire Bender is built both strong and powerful, with gearing compounded for heavy bending as well as light. The center roll for taking the bent tire out of the machine is removed in an instant by drawing the two levers attached to the two wedge-shaped clamps about six inches. The removing of the center roll being very convenient, as the collars when set need not be removed until the full set of tires are bent. The adjusting of the Columbian Bender for large or small tires is a thorough mechanical principle, working on an incline, with a movable device which at all times works to its own center; therefore the old trouble with a one-screw adjustment is overcome.

Extra Heavy Columbian Bender, Capacity 6 x 1 Inches, Weight 400 lbs. *Code—Felshorn* **$60.00**

No. 1 Columbian Bender, Capacity 5 x 1 Inches, Weight 325 lbs. *Code—Felly* **50.00**

No. 2 Columbian Bender, Capacity 4 x 1 Inches, Weight 220 lbs. *Code—Fell* **40.00**

THE CHAMPION
NEW PATENT EUREKA TIRE BENDER

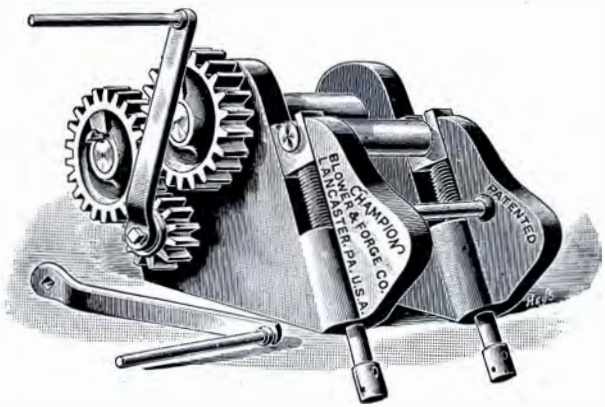


The Champion New Patent Eureka Tire Bender is a strong and powerful tool, built with all the latest improvements; adjusting screws at each end of the adjusting roll with a graduated indicator on each side of Bender, showing the exact size of the tire being bent, giving the operator full control of the work. No more trouble to bend imperfect iron into perfect tires; the principle for getting the tire out after being bent is quick and entirely practical. The two end rolls are provided with collars to prevent the tire from twisting so both ends meet when bent. It is double-back geared, and worked with two cranks which are furnished with each Bender; also two speeds, one for light and fast work, and the second for heavy work.

No. 1 New Style Eureka Bender, Bends 4 x 1-Inch Tire, Weight 200 lbs. *Code—Felt*.....**$24.00**

No. 2 New Style Eureka Bender, Bends 6 x 1-Inch Tire, Weight 300 lbs. *Code—Feminine*..... **33.00**

THE CHAMPION
NEW PATENT TIRE BENDER

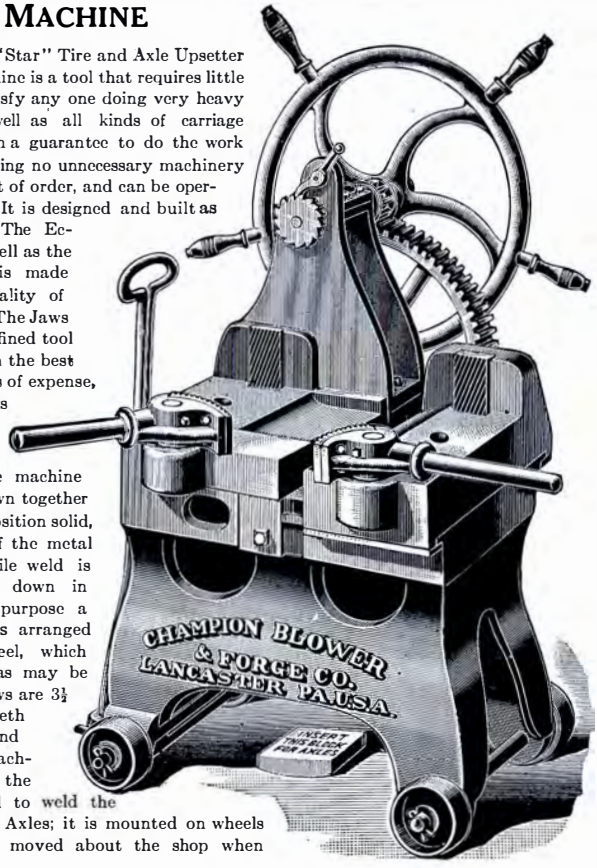


The Champion New Patent Tire Bender is constructed with all the new improvements. Will bend to any size up to 3 x $\frac{3}{4}$. Its adjusting roll has an adjusting screw at each end, with a graduated indicator on each side of the Bender showing the exact size of the tire being bent, giving all the benefits of bending perfect tires from imperfect rolled iron. The frame is cast strong and substantial with double back gears and worked with two cranks. The center roll pulls out to take the tire out, very convenient.

In every sense of the word it is a first-class tool for all kinds of light work.

The Champion New Patent Tire Bender, Weight 120 lbs. *Code—Fence*.....**$15.00**

THE CHAMPION "STAR" TIRE AND AXLE UPSETTER AND WELDING MACHINE



The Champion "Star" Tire and Axle Upsetter and Welding Machine is a tool that requires little explanation to satisfy any one doing very heavy wagon work, as well as all kinds of carriage work. It is sold on a guarantee to do the work claimed for it, having no unnecessary machinery about it to get out of order, and can be operated by any one. It is designed and built as a powerful tool. The Eccentric Shaft, as well as the Eccentric Strap, is made from the best quality of hammered steel. The Jaws are steeled with refined tool steel, making them the best possible, regardless of expense, and will stand years of hard work.

When welding tires or axles, the machine requires to be drawn together and held in that position solid, to keep the ends of the metal solid together while weld is being hammered down in shape; for this purpose a ratchet and a dog is arranged on the hand wheel, which holds it as tight as may be required. The jaws are 3½ inches high; the teeth are machine-cut and hardened. The machine will stand all the pounding required to weld the heaviest Tires and Axles; it is mounted on wheels so that it can be moved about the shop when necessary.

No. 1 Champion "Star" Shrinker upsets or welds tire from ¾ to 5 x 1¼ inches; upsets or welds axles, ¾ to 2½ inches; upsets with one revolution, 2 inches; Weight 810 lbs. *Code—Ferine*.....**$120.00**

No. 2 Champion "Star" Shrinker upsets or welds tire from ¾ to 7 x 1½ inches; upsets or welds axles, ¾ to 3½ inches; upsets with one revolution, 2 inches; Weight 1,080 lbs. *Code—Feasible*.....**125.00**

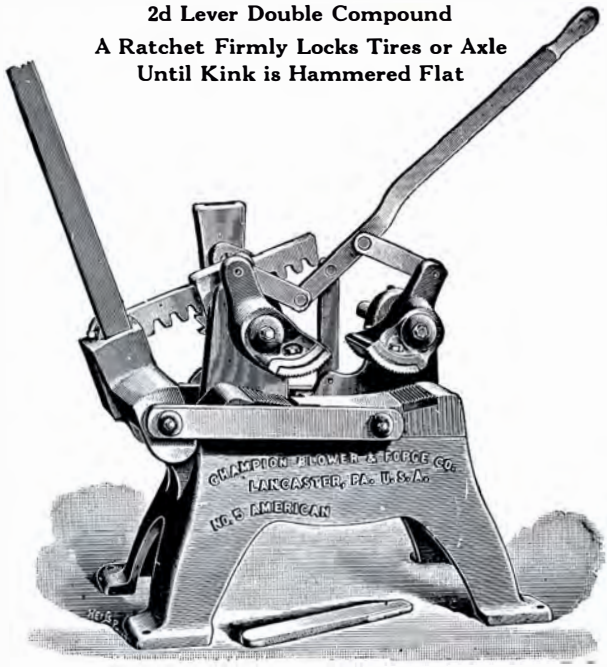
No. 3 Champion "Star" Shrinker upsets or welds tire from ¾ to 8 x 1½ inches; upsets or welds axles, ¾ to 3½ inches; upsets with one revolution, 2 inches; Weight 1,100 lbs. *Code—Feitora*.....**150.00**

NO. 5 CHAMPION AMERICAN TIRE AND AXLE SHRINKER

HAS TWO SHRINKING LEVERS

1st Lever for Light Tires
2d Lever Double Compound

A Ratchet Firmly Locks Tires or Axle Until Kink is Hammered Flat



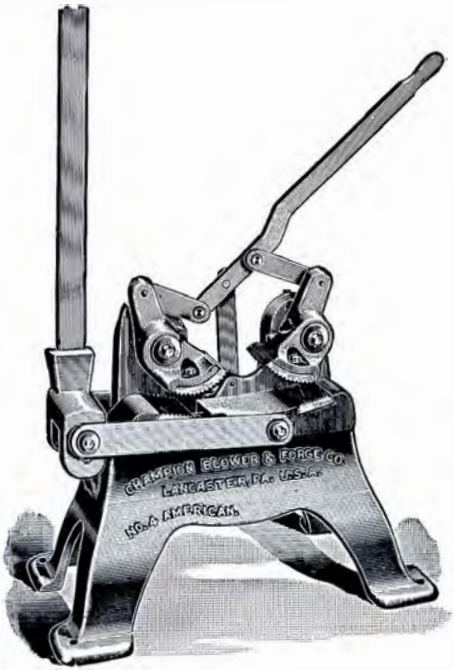
No. 5 Champion **American** Tire and Axle Shrinker is in size and capacity the same as the No. 4 American Shrinker shown on opposite page, but has two shrinking levers, one for small tires and one a **DOUBLE COMPOUND** shrinking lever which greatly multiplies its shrinking power for heavy work. Both levers are always ready for instantaneous operation, either for shrinking the tire or opening the Shrinker and jaws for the next tire. This **DOUBLE COMPOUND** lever represents strength, quickness of operation and speed in shrinking that places it in a class strictly its own when a higher powered Shrinker is wanted.

No. 5 Champion **American** Shrinker is furnished with a ratchet wheel and dog to hold and lock the tire in the Shrinker after the tire or axle is shrunken the desired distance so the shrunken kink can be hammered flat without increasing the size of the tire or axle; a valuable feature never before found except in extremely high priced Shrinkers.

No. 5 Champion **American** Shrinker is cast in one solid block with double bearings on the eccentric to meet the requirements in strength for the demands of the **DOUBLE COMPOUND** lever.

No. 5 Champion American Shrinker, will shrink round edge tires up to 4 x 1 inch and axles up to 1¼ inches, with two steel jaws 4 x 2 inches wide, Weight 420 lbs.
Code—Fungere **$60.00**

No. 4 Champion American Tire and Axle Shrinker



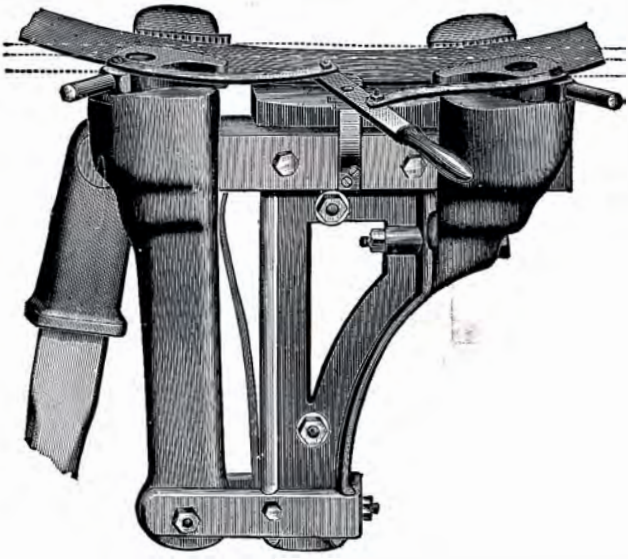
No. 4 Champion American Tire and Axle Shrinker represents a stout, bulky and powerful machine. It is guaranteed to shrink with perfect ease 4 x 1 inch round edge tire down to the smallest buggy tire and axles up to 1¼ inches square. It will shrink with one stroke of the lever 1¼ inches. The Shrinker will stand all the pounding necessary to keep down the kinks in the tire.

The jaws are made of hammered tool steel with machine-cut teeth hardened to suit the work to be done. The jaws are worked by a mechanical lever and are thrown in and out instantly by a simple movement of the hand, which makes it a Shrinker that can be handled by one man if so desired.

It will be seen that the tire is gripped on its flat sides, both top and bottom, and the tire is held with a perfect grip until it is shrunk. The Shrinker is guaranteed to do the work we claim for it and is sold with our highest recommendation.

No. 4 Champion American Tire and Axle Shrinker will shrink up to 4 x 1 inch round edge tire and axles up to 1¼ inches, with two steel jaws 4 x 2 inches wide. Weight 360 lbs. *Code—Ferlet*..... **$50.00**

THE LANCASTER TIRE AND AXLE SHRINKER

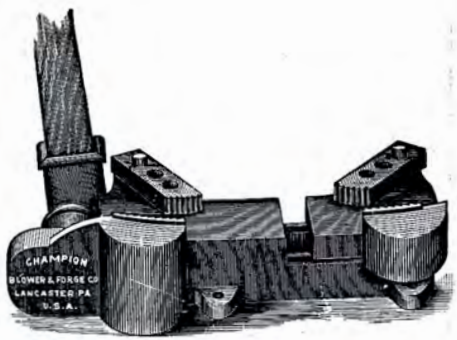


The Lancaster Tire and Axle Shrinker is constructed in the most mechanical manner and from the highest grade material. The Jaws or Cams are drop forged from the highest grade of Tool Steel hardened and tempered. The Jaws or Cams are opened and closed by a single movement of the hand and it is not necessary to hold on to the handle while shrinking. The cams are so arranged that it makes no difference what width of tire or axle is being shrunk, they always work in direct line with the center and directly opposite the grip on the other side of the Shrinker. Will shrink from smallest to a full 4 x 1-inch tire or 1½-inch axle.

The Jaws and Cams being Tool Steel, Hardened and Tempered to suit the work, makes them far superior to Chilled Cast Iron Jaws, such as are found on most all other medium-priced Shrinkers. The Jaws and Cams are heavy, strong and substantial, and always ready for work without any expense, as the Blacksmith can keep the Jaws and Cam teeth sharp until they are entirely worn out, as they are solid Steel. It requires but little room to set up, as it is set on a post making it as solid and firm as an anvil for hammering down the kinks in the tire while shrinking.

The Lancaster Tire and Axle Shrinker will Shrink all Size Tires up to a Full 4 x 1 Inch, and Axles up to 1½ Inches, Weight 200 lbs. *Code—Fermaux*.....**$30.00**

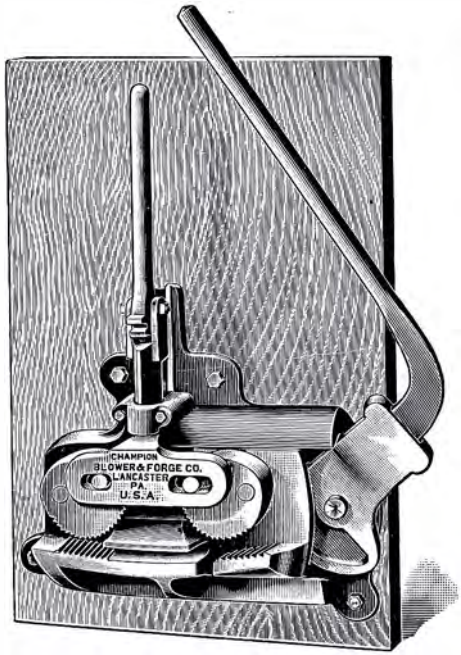
THE CHAMPION TIRE SHRINKER



The Champion Tire Shrinker saves all cutting and welding of tires. It is the easiest worked, simplest, most durable and economical Shrinker in the market. It meets universal approval and a long-felt want among blacksmiths, the price being within the reach of all; is managed by one man with perfect ease and works equally well on the lightest steel tire and on wagon tire 4 by 1 inch. All that is necessary to operate this Shrinker is place the tire between the jaws, then draw the two cams against the tire, and with but little pressure on the handle you can shrink the tire to suit.

The Champion Tire Shrinker, Weight 155 lbs., will Shrink Tire 4 x 1 Inch, will Shrink Axles up to 1¼ Inches, Floor Space 18 x 10 Inches. *Code—Ferment. . .* **$20.00**

CHAMPION STODDARD TIRE SHRINKER



Champion Stoddard Tire Shrinkers are the lowest priced shrinker on the market. They are heavy in construction, convenient to handle and are guaranteed to shrink a tire. The Cam Jaws are faced with tool steel corrugated and hardened to insure proper gripping of the tire instead of a plain cast iron Jaw which other manufacturers use. They take the tire on the flat side and have an anti-kink attachment to prevent kinking. These machines are fastened to a board or post and take up no floor space and are always ready for use. Solid iron lever is furnished with each Shrinker to be lengthened by the operator to suit himself.

No. 1 Champion Stoddard Tire Shrinker will Shrink up to 2-Inch Tire. Weight 115 lbs. *Code—Fot*..... **$12.00**

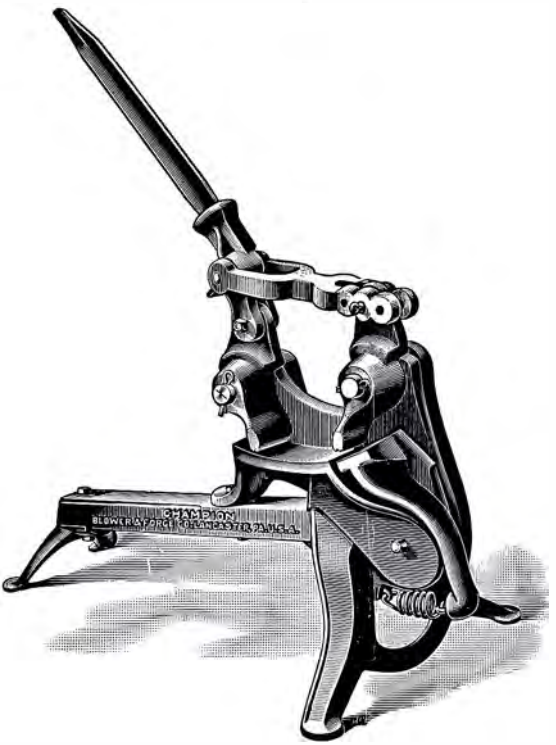
No. 2 Champion Stoddard Tire Shrinker will Shrink up to 4-Inch Tire. Weight 250 lbs. *Code—Foter*..... **21.00**

No. 3 Champion Stoddard Tire Shrinker will Shrink up to 4-Inch Tire. It is Equipped with Two Sets of Loose Jaws Adjustable for Light and Heavy Tires and Upsetting Axles up to 1¾ Inches. Weight 315 lbs. *Code—Fotest*..... **26.00**

No. 4 Champion Stoddard Tire Shrinker will Shrink up to 6-Inch Tire. Weight 425 lbs. *Code—Fort*..... **34.00**

No. 5 Champion Stoddard Tire Shrinker will Shrink up to 6-Inch Tire. It is specially Constructed to Shrink Heavy and Light Tires and Axles up to 2 Inches Thick. Weight 445 lbs. *Code—Forter*..... **40.00**

CHAMPION MOLE TIRE SHRINKER



The Champion Mole Tire Shrinker is guaranteed to work correctly and is recommended only where the lowest priced shrinker obtainable is desired. It is built of first-class material and workmanship throughout and is furnished with and without Anti-Kinking attachment.

No. 1 Champion Mole Tire Shrinker will Shrink Tire 2½ x ½ Ins. Weight 145 lbs.
Code—Fost **$12.00**

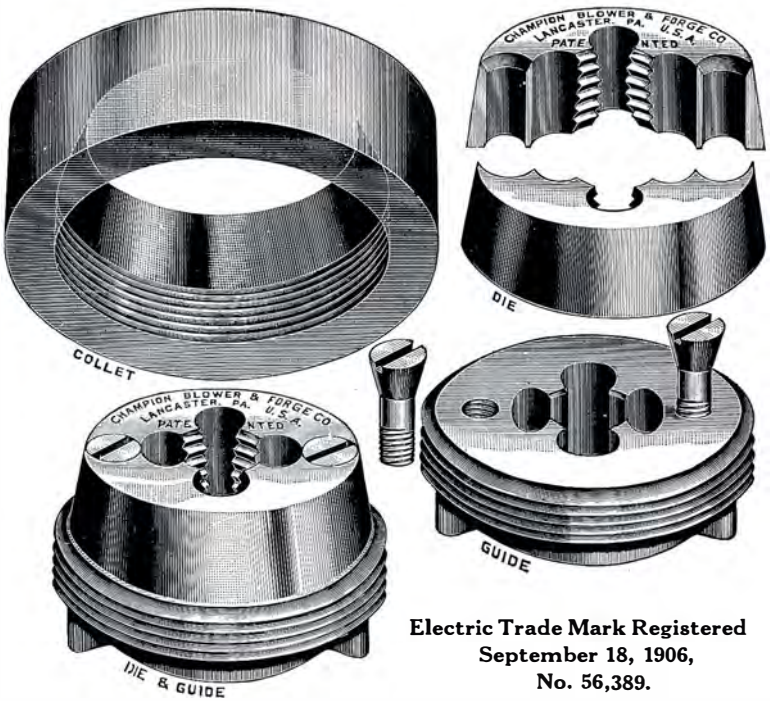
No. 2 Champion Mole Tire Shrinker will Shrink Tires 3 x ½ Ins. Weight 215 lbs.
Code—Foster **18.00**

No. 3 Champion Mole Tire Shrinker will Shrink Tires 4 x ¾ Ins. Weight 290 lbs.
Code—Fostest **21.00**

No. 4 Champion Mole Tire Shrinker with Anti-Kinking Device, will Shrink Tires 3 x ½ Ins. Weight 235 lbs. *Code—Fostigan* **19.00**

No. 5 Champion Mole Tire Shrinker with Anti-Kinking Device, will Shrink Tires 4 x ¾ Ins. Weight 410 lbs. *Code—Fostater* **22.50**

THE CHAMPION ELECTRIC DIE, COLLET AND GUIDE SHOWN IN SECTIONS



Electric Trade Mark Registered September 18, 1906, No. 56,389.

This cut represents the Electric Taper Adjustable Die with its Collet and Guide showing its superior merit in adjustment, accuracy and strength. The Die is shown as when ready for work, screwed into the exact counter-taper of the Collet, both tapers matching, the result being a rigidity and firmness on the full circle not to be obtained in any other way. No screws through Collet, consequently there is no impairment of its strength. One screw adjusting movement brings both halves of the Die to center, assuring equal work for the cutters, a principle which makes the durability of the Die apparent. Its simple adjusting principle makes it an efficient tool, even in the hands of people who are not practical mechanics. This form of adjustment is used on both the Electric and Electric Full Mounted Sets. Other superior points are as follows:

1st. The adjustment is universal, impossible to make one cutter cut more than another, thus always cutting a perfect thread. 2d. The adjustment of our Die can be varied from $\frac{1}{1000}$ to $\frac{1}{16}$ of an inch to meet the variations of wrought iron, or to allow nuts and bolts to fit together tightly and loosely as may be desired by setting the taper screws to size wanted, and then placing the wrench in the notches in the guide, and with one turn the Die is universally adjusted, where it is placed as solid and firm as though made from one piece of steel. 3d. As our Dies are firm by being held to the guide by the taper of the Die and Collet, and also the two taper screws, making it impossible for chips to get beneath the Dies to cock them up and strip the threads. 4th. It finishes the work at one cut. 5th. For cutting up close to a shoulder use face side of Die downward.

THE CHAMPION ELECTRIC SCREW PLATES

NOTICE—Nos. 2, 5, 5½, 6, 7 and 9 Electric Sets are now Furnished with TWO STOCKS. Every Set is Packed in a Hardwood Case and Furnished with an Adjustable Tap Wrench. All Our Taps are Machine-Relieved.

No. 1. 5 sizes. $\frac{1}{4}$20, $\frac{5}{16}$18, $\frac{3}{8}$16, $\frac{7}{16}$14, $\frac{1}{2}$13. *Code—Ferocious*.....**$18.50.**
Taper Taps. Electric Dies; 2 $\frac{5}{16}$ inches dia. Collets. Stock 18 inches long. Adjustable Tap Wrench No. 2, 10½ inches long. Weight 15 lbs.

No. 2. 5 sizes. $\frac{1}{4}$20, $\frac{3}{8}$16, $\frac{1}{2}$13, $\frac{5}{8}$11, $\frac{3}{4}$10. *Code—Ferret*.....**$22.75.**
Taper Taps. Electric Dies; 2 $\frac{5}{16}$ inches dia. Collets for sizes $\frac{3}{8}$ inch and smaller; 2 $\frac{3}{4}$ inches dia. for sizes $\frac{1}{2}$ inch and larger. Two Stocks 18 inches and 23 inches long. Adjustable Tap Wrench No. 3, 15 inches long. Weight 19 lbs.

No. 3. 4 sizes. $\frac{5}{8}$11, $\frac{3}{4}$10, $\frac{7}{8}$9, 1 8. *Code—Ferriage*.....**$26.25.**
Taper Taps. Electric Dies; 2 $\frac{3}{4}$ inches dia. Collets. Stock 29 inches long. Adjustable Tap Wrench No. 4, 20 inches long. Weight 19 lbs.

No. 4. 5 sizes. $\frac{1}{2}$13, $\frac{5}{8}$11, $\frac{3}{4}$10, $\frac{7}{8}$9, 1 8. *Code—Ferrule*.....**$29.25.**
Taper Taps. Electric Dies; 2 $\frac{3}{4}$ inches dia. Collets. Stock 29 inches long. Adjustable Tap Wrench No. 4, 20 inches long. Weight 22 lbs.

No. 5. 7 sizes. $\frac{1}{4}$20, $\frac{5}{16}$18, $\frac{3}{8}$16, $\frac{7}{16}$14, $\frac{1}{2}$13, $\frac{5}{8}$11, $\frac{3}{4}$10. *Code—Ferry*.....**$27.50.**
Taper Taps. Electric Dies; 2 $\frac{5}{16}$ inches dia. Collets for sizes $\frac{7}{16}$ inch and smaller; 2 $\frac{3}{4}$ inches dia. for sizes $\frac{1}{2}$ inch and larger. Two Stocks 18 inches and 23 inches long. Adjustable Tap Wrench No. 3, 15 inches long. Weight 24 lbs.

No. 5½. 8 sizes. $\frac{1}{4}$20, $\frac{5}{16}$18, $\frac{3}{8}$16, $\frac{7}{16}$14, $\frac{1}{2}$13, $\frac{9}{16}$12, $\frac{5}{8}$11, $\frac{3}{4}$10. *Code—Fertility*.....**$30.75.**
Taper Taps. Electric Dies; 2 $\frac{5}{16}$ inches dia. Collets for sizes $\frac{7}{16}$ inches and smaller; 2 $\frac{3}{4}$ inches dia. for sizes $\frac{1}{2}$ inch and larger. Two Stocks 18 inches and 23 inches long. Adjustable Tap Wrench No. 3, 15 inches long. Weight 26 lbs

No. 6. 7 sizes. $\frac{3}{8}$16, $\frac{7}{16}$14, $\frac{1}{2}$13, $\frac{5}{8}$11, $\frac{3}{4}$10, $\frac{7}{8}$9, 1 8. *Code—Fertilize*.....**$35.00.**
Taper Taps. Electric Dies; 2 $\frac{5}{16}$ inches dia. Collets for sizes $\frac{7}{16}$ inch and smaller; 2 $\frac{3}{4}$ inches dia. for sizes $\frac{1}{2}$ inch and larger. Two Stocks 18 inches and 29 inches long. Adjustable Tap Wrench No. 4, 20 inches long. Weight 29 lbs.

No. 7. 9 sizes. $\frac{1}{4}$20, $\frac{5}{16}$18, $\frac{3}{8}$16, $\frac{7}{16}$14, $\frac{1}{2}$13, $\frac{5}{8}$11, $\frac{3}{4}$10, $\frac{7}{8}$9, 1 8. *Code—Fervency*.....**$42.00.**
Taper Taps. Electric Dies; 2 $\frac{5}{16}$ inches dia. Collets for sizes $\frac{7}{16}$ inch and smaller; 2 $\frac{3}{4}$ inches dia. for sizes $\frac{1}{2}$ inch and larger. Two Stocks 18 inches and 29 inches long. Adjustable Tap Wrench No. 4, 20 inches long. Weight 31 lbs.

No. 9. 10 sizes. $\frac{1}{4}$20, $\frac{5}{16}$18, $\frac{3}{8}$16, $\frac{7}{16}$14, $\frac{1}{2}$13, $\frac{9}{16}$12, $\frac{5}{8}$11, $\frac{3}{4}$10, $\frac{7}{8}$9, 1 8. *Code—Fertasi*.....**$44.25.**
Taper Taps. Electric Dies; 2 $\frac{5}{16}$ inches dia. Collets for sizes $\frac{7}{16}$ inch and smaller; 2 $\frac{3}{4}$ inches dia. for sizes $\frac{1}{2}$ inch and larger. Two Stocks 18 inches and 29 inches long. Adjustable Tap Wrench No. 4, 20 inches long. Weight 35 lbs.

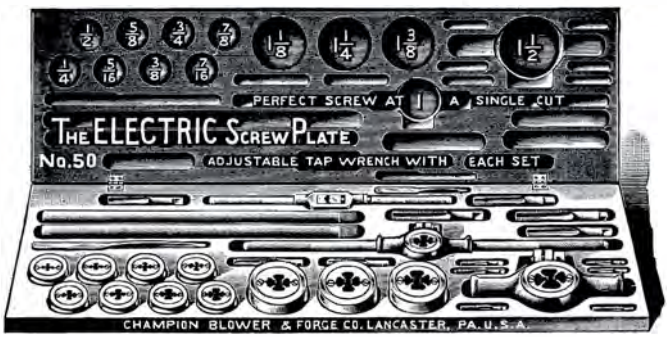
Unless otherwise ordered, U. S. Standard threads will be sent. Oversize V, S. A. E., or Whitworth threads furnished at same price, if specially ordered.

ALL OUR PLATES WARRANTED

THE CHAMPION ELECTRIC SCREW PLATE

From ¼ to 1½ Inch

Nos. 20, 25, 40 and 50 Electric Sets are Furnished with TWO STOCKS. All Sets are Packed in a Hardwood Case and Furnished with an Adjustable Tap Wrench. All Our Taps are Machine-Relieved.


PERFECT SCREW AT A SINGLE CUT
THE ELECTRIC SCREW PLATE
No.50
ADJUSTABLE TAP WRENCH WITH EACH SET
CHAMPION BLOWER & FORGE CO. LANCASTER, PA. U.S.A.

No. 20. 6 sizes. 5/16-11, 3/8-10, 7/8-9, 1-8, 1 1/8-7, 1 1/4-7. *Code—Fiducial*.....**$53.50.**
Taper Taps. Electric Dies; 2¾ inches dia. Collets for sizes 1 inch and smaller; 4 3/16 inches dia. for 1⅛ inches and larger. Two Stocks 29 inches and 40 inches long. Adjustable Tap Wrench No. 5, 26 inches long. Weight 50 lbs.

No. 25. 6 sizes. 7/8-9, 1-8, 1 1/8-7, 1 1/4-7, 1 3/8-6, 1 1/2-6. *Code—Fiduciary*.....**$70.00.**
Taper Taps. Electric Dies; 2¾ inches dia. Collets for sizes 1 inch and smaller; 4 3/16 inches dia. for 1⅛ inches and larger. Two stocks 29 inches and 53 inches long. Adjustable Tap Wrench No. 5, 26 inches long. Weight 52 lbs.

No. 30. 4 sizes. 1 1/8-7, 1 1/4-7, 1 3/8-6, 1 1/2-6. *Code—Fief*.....**$59.00.**
Taper Taps. Electric Dies; 4 3/16 inches dia. Collets. Stock 53 inches long. Adjustable Tap Wrench No. 5, 26 inches long. Weight 50 lbs.

No. 40. 11 sizes. 1/4-20, 5/16-18, 3/8-16, 7/16-14, 1/2-13, 5/8-11, 3/4-10, 7/8-9, 1-8, 1 1/8-7, 1 1/4-7. *Code—Field*...**$68.50.**
Taper Taps. Electric Dies; 2¾ inches dia. Collets for sizes 1 inch and smaller; 4 3/16 inches dia. for 1⅛ inches and larger. Two Stocks 29 inches and 40 inches long. Adjustable Tap Wrench No. 2, 10½ inches long and No. 5, 26 inches long. Weight 65 lbs.

No. 50. 13 sizes. 1/4-20, 5/16-18, 3/8-16, 7/16-14, 1/2-13, 5/8-11, 3/4-10, 7/8-9, 1-8, 1 1/8-7, 1 1/4-7, 1 3/8-6, 1 1/2-6. *Code—Fiend*.....**$92.00.**
Taper Taps. Electric Dies; 2¾ inches dia. Collets for sizes 1 inch and smaller; 4 3/16 inches dia. for 1⅛ inches and larger. Two Stocks 29 inches and 53 inches long. Adjustable Tap Wrench No. 2, 10½ inches long and No. 5, 26 inches long. Weight 80 lbs.

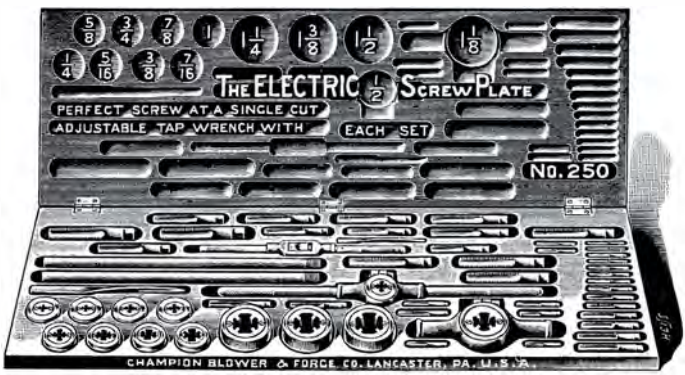
Unless otherwise ordered, U. S. Standard threads will be sent. Can supply oversize V, S. A. E. Standard or Whitworth form of thread at regular price when specially ordered.

ALL OUR PLATES WARRANTED

THE CHAMPION
ELECTRIC MACHINISTS' SCREW PLATES

With Taper, Plug, and Bottoming Taps

Nos. 206, 208, 209 and 250 Electric Sets are Furnished with TWO STOCKS. Every Set is Packed in a Hardwood Case and Furnished with an Adjustable Tap Wrench. All Our Taps are Machine-Relieved.


THE ELECTRIC SCREW PLATE
PERFECT SCREW AT A SINGLE CUT
ADJUSTABLE TAP WRENCH WITH EACH SET
No. 250
CHAMPION BLOWER & FORGE CO. LANCASTER, PA. U.S.A.

No. 201. 5 sizes. $\frac{1}{4}^{20}$, $\frac{5}{16}^{18}$, $\frac{3}{8}^{16}$, $\frac{7}{16}^{14}$, $\frac{1}{2}^{13}$. *Code—Fierce*.....**$22.00.**
Taper, Plug and Bottoming Taps. Electric Dies; 2 $\frac{5}{16}$ inches dia. Collets. Stock 18 inches long. Adjustable Tap Wrench No. 2, 10½ inches long. Weight 15 lbs.

No. 206. 7 sizes. $\frac{3}{16}$, $\frac{7}{16}^{14}$, $\frac{1}{2}^{13}$, $\frac{5}{8}^{11}$, $\frac{3}{4}^{10}$, $\frac{7}{8}^{9}$, 1^{8}. *Code—Fifer*.....**$45.00.**
Taper, Plug and Bottoming Taps. Electric Dies; 2 $\frac{5}{16}$ inches dia. Collets for sizes $\frac{7}{16}$ inch and smaller; 2 $\frac{3}{4}$ inches dia. for sizes $\frac{1}{2}$ inch and larger. Two Stocks 18 inches and 29 inches long. Adjustable Tap Wrench No. 4, 20 inches long. Weight 32 lbs.

No. 208. 7 sizes. $\frac{1}{4}^{20}$, $\frac{5}{16}^{18}$, $\frac{3}{8}^{16}$, $\frac{7}{16}^{14}$, $\frac{1}{2}^{13}$, $\frac{5}{8}^{11}$, $\frac{3}{4}^{10}$. *Code—Figment*.....**$35.75.**
Taper, Plug and Bottoming Taps. Electric Dies; 2 $\frac{5}{16}$ inches dia. Collets for sizes $\frac{7}{16}$ inch and smaller, 2$\frac{3}{4}$ inches dia. for sizes $\frac{1}{2}$ inch and larger. Two Stocks 18 inches and 23 inches long. Adjustable Tap Wrench No. 3, 15 inches long. Weight 26 lbs.

No. 209. 9 sizes. $\frac{1}{4}^{20}$, $\frac{5}{16}^{18}$, $\frac{3}{8}^{16}$, $\frac{7}{16}^{14}$, $\frac{1}{2}^{13}$, $\frac{5}{8}^{11}$, $\frac{3}{4}^{10}$, $\frac{7}{8}^{9}$, 1^{8}. *Code—Figurable*.....**$50.50.**
Taper, Plug and Bottoming Taps. Electric Dies; 2 $\frac{5}{16}$ inches dia. Collets for sizes $\frac{7}{16}$ inch and smaller, 2$\frac{3}{4}$ inches dia. for sizes $\frac{1}{2}$ inch and larger. Two Stocks 18 inches and 29 inches long. Adjustable Tap Wrench No. 4, 20 inches long. Weight 36 lbs.

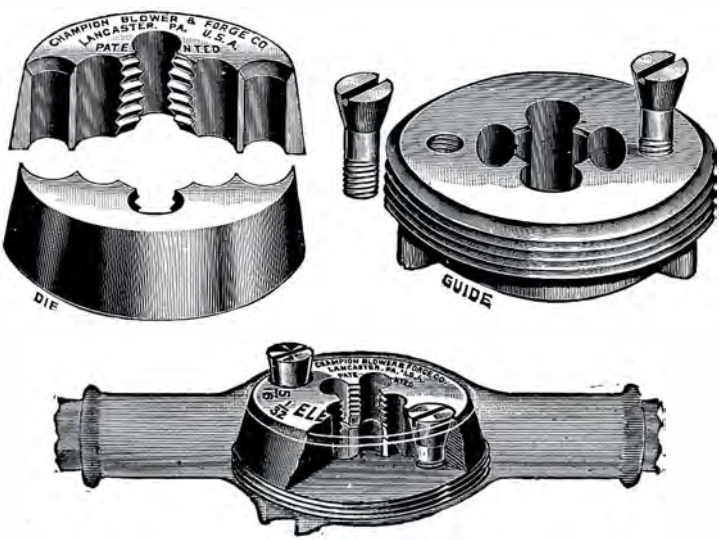
No. 250. 13 sizes. $\frac{1}{4}^{20}$, $\frac{5}{16}^{18}$, $\frac{3}{8}^{16}$, $\frac{7}{16}^{14}$, $\frac{1}{2}^{13}$, $\frac{5}{8}^{11}$, $\frac{3}{4}^{10}$, $\frac{7}{8}^{9}$, 1^{8}, $1\frac{1}{8}^{7}$, $1\frac{1}{4}^{7}$, $1\frac{3}{8}^{6}$, $1\frac{1}{2}^{6}$. *Code—Figuration*.....**$120.00.**
Taper, Plug and Bottoming Taps. Electric Dies; 2$\frac{3}{4}$ inches dia. Collets for sizes 1 inch and smaller, 4 $\frac{3}{16}$ inches dia. for 1$\frac{1}{8}$ inches and larger. Two Stocks 29 inches and 53 inches long. Adjustable Tap Wrench No. 2, 10½ inches long, and No. 5, 26 inches long. Weight 85 lbs.

Unless otherwise ordered, U. S. Standard threads will be sent. Can supply Screw Plates with oversize V, S. A. E. Standard or Whitworth form of thread at regular prices when ordered.

ALL OUR PLATES WARRANTED

THE CHAMPION ELECTRIC FULL-MOUNTED DIE, STOCK AND GUIDE

SHOWN IN SECTIONS



The Full-Mounted Electric Stock and Die is constructed precisely in adjustment of its dies like illustrations shown above, which fully shows the entire mechanism of the Electric Patent Adjustable Dies. Every Full-Mounted Die is supplied with a stock complete in itself, thus being able to use different dies at the same time from the same set. The Full-Mounted Electric finishes the work at one cut. For cutting up close to the shoulder, use face side of die downwards.

THE CHAMPION
ELECTRIC FULL-MOUNTED SCREW PLATES

NOTICE—Every Set is Packed in a Hardwood Case and is Supplied with an Adjustable Tap Wrench. All Our Taps are Machine-Relieved.

No. 101. 5 sizes. $\frac{1}{4}$20, $\frac{5}{16}$18, $\frac{3}{8}$16, $\frac{7}{16}$14, $\frac{1}{2}$13. *Code—Fescue*.....**$22.00.**
Taper Taps. Electric Dies. Separate Stock for each die. Adjustable Tap Wrench No. 2, 10½ inches long. Weight 17 lbs.

No. 102. 5 sizes. $\frac{1}{4}$20, $\frac{3}{8}$16, $\frac{1}{2}$13, $\frac{5}{8}$11, $\frac{3}{4}$10. *Code—Festal*.....**$29.00.**
Taper Taps. Electric Dies. Separate Stock for each die. Adjustable Tap Wrench No. 3, 15 inches long. Weight 31 lbs.

No. 103. 4 sizes. $\frac{5}{8}$11, $\frac{3}{4}$10, $\frac{7}{8}$9, 1⁸. *Code—Festival*.....**$36.50.**
Taper Taps. Electric Dies. Separate Stock for each die. Adjustable Tap Wrench No. 4, 20 inches long. Weight 30 lbs.

No. 104. 5 sizes. $\frac{1}{2}$13, $\frac{5}{8}$11, $\frac{3}{4}$10, $\frac{7}{8}$9, 1⁸. *Code—Festive*.....**$37.50.**
Taper Taps. Electric Dies. Separate Stock for each die. Adjustable Tap Wrench No. 4, 20 inches long. Weight 32 lbs.

No. 105. 7 sizes. $\frac{1}{4}$20, $\frac{5}{16}$18, $\frac{3}{8}$16, $\frac{7}{16}$14, $\frac{1}{2}$13, $\frac{5}{8}$11, $\frac{3}{4}$10. *Code—Festivity*.....**$34.50.**
Taper Taps. Electric Dies. Separate Stock for each die. Adjustable Tap Wrench No. 3, 15 inches long. Weight 29 lbs.

No. 105½. 8 sizes. $\frac{1}{4}$20, $\frac{5}{16}$18, $\frac{3}{8}$16, $\frac{7}{16}$14, $\frac{1}{2}$13, $\frac{9}{16}$12, $\frac{5}{8}$11, $\frac{3}{4}$10. *Code—Festoon*.....**$38.50.**
Taper Taps. Electric Dies. Separate Stock for each die. Adjustable Tap Wrench No. 3, 15 inches long. Weight 30 lbs.

No. 106. 7 sizes. $\frac{3}{8}$16, $\frac{7}{16}$14, $\frac{1}{2}$13, $\frac{5}{8}$11, $\frac{3}{4}$10, $\frac{7}{8}$9, 1⁸. *Code—Fetch*.....**$45.25.**
Taper Taps. Electric Dies. Separate Stock for each die. Adjustable Tap Wrench No. 4, 20 inches long. Weight 34 lbs.

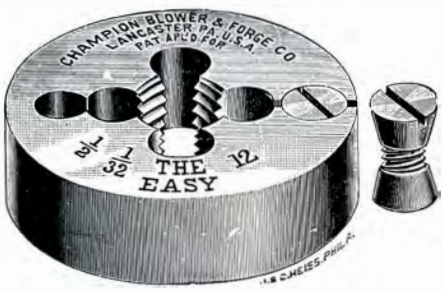
No. 107. 9 sizes. $\frac{1}{4}$20, $\frac{5}{16}$18, $\frac{3}{8}$16, $\frac{7}{16}$14, $\frac{1}{2}$13, $\frac{5}{8}$11, $\frac{3}{4}$10, $\frac{7}{8}$9, 1⁸. *Code—Fetlock*.....**$54.00.**
Taper Taps. Electric Dies. Separate Stock for each die. Adjustable Tap Wrench No. 4, 20 inches long. Weight 37 lbs.

No. 107½. 10 sizes. $\frac{1}{4}$20, $\frac{5}{16}$18, $\frac{3}{8}$16, $\frac{7}{16}$14, $\frac{1}{2}$13, $\frac{9}{16}$12, $\frac{5}{8}$11, $\frac{3}{4}$10, $\frac{7}{8}$9, 1⁸. *Code—Fetter*....**$58.25.**
Taper Taps. Electric Dies. Separate Stock for each die. Adjustable Tap Wrench No. 4, 20 inches long. Weight 42 lbs.

Unless otherwise ordered, will send all Screw Plates U. S. Standard thread. Can supply Screw Plates with oversize V, S. A. E. Standard, or Whitworth form of thread, at regular prices, when ordered.

THE CHAMPION EASY SCREW PLATE DIE

Easy Trade Mark, Registered September 18, 1906, No. 56,390



For simplicity in construction, compactness and neatness in design with every improvement in a Screw Plate which makes a perfect Screw at a Single Cut, the "Easy," ranks among the highest; the Die being adjustable by the use of a Taper-Head Screw with a Taper Nut, thus being braced on both sides of the Die, making it perfectly rigid and solid.

The material and workmanship on the "Easy" and "Easy" Full-Mounted Screw Plates are precisely the same as on our "Electric" and "Electric" Full-Mounted. The difference being in the simplicity of the "Easy" and "Easy" Full-Mounted in manufacturing. They are first-class Plates and sold on our guarantee.

EASY FULL-MOUNTED STOCK AND DIE

THE CHAMPION EASY SCREW PLATES

NOTICE—Nos. 2B, 5B, 5½B, 6B, 7B and 9B Easy Sets are Furnished with TWO STOCKS. Every Set is Packed in a Hardwood Case and Furnished with an Adjustable Tap Wrench. All Our Taps are Machine-Relieved.

No. 1B. 5 sizes. $\frac{1}{4}^{20}$, $\frac{5}{16}^{18}$, $\frac{3}{8}^{16}$, $\frac{7}{16}^{14}$, $\frac{1}{2}^{13}$. *Code—Feud*.....**$13.50.**
Taper Taps. Easy Dies 1½ inches in diameter. Stock 15½ inches long. Adjustable Tap Wrench No. 2, 10½ inches long. Weight 7½ lbs.

No. 1½B. 5 sizes. $\frac{1}{4}^{20}$, $\frac{5}{16}^{18}$, $\frac{3}{8}^{16}$, $\frac{1}{2}^{13}$, $\frac{5}{8}^{11}$. *Code—Fuet*.....**$14.00.**
Taper Taps. Easy Dies 1½ inches in diameter. Stock 15½ inches long. Adjustable Tap Wrench No. 2, 10½ inches long. Weight 7½ lbs.

No. 2B. 5 sizes. $\frac{1}{4}^{20}$, $\frac{3}{8}^{16}$, $\frac{1}{2}^{13}$, $\frac{5}{8}^{11}$, $\frac{3}{4}^{10}$. *Code—Feverfew*.....**$17.75.**
Taper Taps. Easy Dies. First two sizes 1½ inches in diameter, larger sizes $1\frac{13}{16}$ inches in diameter. Two Stocks 15½ inches and 23 inches long. Adjustable Tap Wrench No. 3, 15 inches long. Weight 14 lbs.

No. 3B. 4 sizes. $\frac{5}{8}^{11}$, $\frac{3}{4}^{10}$, $\frac{7}{8}^{9}$, 1^{8}. *Code—Few*.....**$20.50.**
Taper Taps. Easy Dies $1\frac{13}{16}$ inches in diameter. Stock 26 inches long. Adjustable Tap Wrench No. 4, 20 inches long. Weight 14 lbs.

No. 4B. 5 sizes. $\frac{1}{2}^{13}$, $\frac{5}{8}^{11}$, $\frac{3}{4}^{10}$, $\frac{7}{8}^{9}$, 1^{8}. *Code—Fiat*.....**$22.50.**
Taper Taps. Easy Dies $1\frac{13}{16}$ inches in diameter. Stock 26 inches long. Adjustable Tap Wrench No. 4, 20 inches long. Weight 14 lbs.

No. 4½B. 6 sizes. $\frac{1}{4}^{20}$, $\frac{5}{16}^{18}$, $\frac{3}{8}^{16}$, $\frac{7}{16}^{14}$, $\frac{1}{2}^{13}$, $\frac{5}{8}^{11}$. *Code—Fibre*.....**$19.75.**
Taper Taps. Easy Dies. First four sizes 1½ inches in diameter, larger sizes $1\frac{13}{16}$ inches in diameter. Two Stocks 15½ inches and 23 inches long. Adjustable Tap Wrench No 3, 15 inches long. Weight 14 lbs.

No. 5B. 7 sizes. $\frac{1}{4}^{20}$, $\frac{5}{16}^{18}$, $\frac{3}{8}^{16}$, $\frac{7}{16}^{14}$, $\frac{1}{2}^{13}$, $\frac{5}{8}^{11}$, $\frac{3}{4}^{10}$. *Code—Finis*.....**$21.00.**
Taper Taps. Easy Dies. First four sizes 1½ inches in diameter, larger sizes $1\frac{13}{16}$ inches in diameter. Two Stocks 15½ inches and 23 inches long. Adjustable Tap Wrench No. 3, 15 inches long. Weight 14 lbs.

No. 5½B. 8 sizes. $\frac{1}{4}^{20}$, $\frac{5}{16}^{18}$, $\frac{3}{8}^{16}$, $\frac{7}{16}^{14}$, $\frac{1}{2}^{13}$, $\frac{9}{16}^{12}$, $\frac{5}{8}^{11}$, $\frac{3}{4}^{10}$. *Code—Fibrous*.....**$23.00.**
Taper Taps. Easy Dies. First four sizes 1½ inches in diameter, larger sizes $1\frac{13}{16}$ inches in diameter. Two Stocks 15½ inches and 23 inches long. Adjustable Tap Wrench No. 3, 15 inches long. Weight 15 lbs.

No. 6B. 7 sizes. $\frac{3}{8}^{16}$, $\frac{7}{16}^{14}$, $\frac{1}{2}^{13}$, $\frac{5}{8}^{11}$, $\frac{3}{4}^{10}$, $\frac{7}{8}^{9}$, 1^{8}. *Code—Fickle*.....**$29.75.**
Taper Taps. Easy Dies. First two sizes 1½ inches diameter, larger sizes $1\frac{13}{16}$ inches in diameter. Two Stocks 15½ inches and 26 inches long. Adjustable Tap Wrench No. 4, 20 inches long. Weight 17 lbs.

No. 7B. 9 sizes. $\frac{1}{4}^{20}$, $\frac{5}{16}^{18}$, $\frac{3}{8}^{16}$, $\frac{7}{16}^{14}$, $\frac{1}{2}^{13}$, $\frac{5}{8}^{11}$, $\frac{3}{4}^{10}$, $\frac{7}{8}^{9}$, 1^{8}. *Code—Fictile*.....**$31.00**
Taper Taps. Easy Dies. First four sizes 1½ inches in diameter, larger sizes $1\frac{13}{16}$ inches in diameter. Two Stocks 15½ inches and 26 inches long. Adjustable Tap Wrench No. 4, 20 inches long. Weight 18 lbs.

No. 9B. 10 sizes. $\frac{1}{4}^{20}$, $\frac{5}{16}^{18}$, $\frac{3}{8}^{16}$, $\frac{7}{16}^{14}$, $\frac{1}{2}^{13}$, $\frac{9}{16}^{12}$, $\frac{5}{8}^{11}$, $\frac{3}{4}^{10}$, $\frac{7}{8}^{9}$, 1^{8}. *Code—Ficarine*.....**$33.00.**
Taper Taps. Easy Dies. First four sizes 1½ inches in diameter, larger sizes $1\frac{13}{16}$ inches in diameter. Two Stocks 15½ inches and 26 inches long. Adjustable Tap Wrench No. 4, 20 inches long. Weight 20 lbs.

Unless otherwise ordered, we will send all Screw Plates U. S. Standard thread. Can supply Screw Plates with oversize V, S. A. E. or Whitworth form of thread, at regular price, when ordered.

ALL OUR PLATES WARRANTED

THE CHAMPION EASY SCREW PLATES

From $\frac{1}{4}$ to $1\frac{1}{2}$ Inches

Nos. 61, 63 and 64 Easy Sets are Furnished with TWO STOCKS. Every Set is Packed in a Hardwood Case and Furnished with an Adjustable Tap Wrench. All Our Taps are Machine-Relieved.

THE EASY SCREW PLATE
PERFECT SCREW AT A SINGLE CUT
No. 64
ADJUSTABLE TAP WRENCH WITH EACH SET
CHAMPION BLOWER & FORGE CO. LANCASTER, PA. U.S.A.

No. 60. 7 sizes. $\frac{1}{2}^{13}$, $\frac{5}{8}^{11}$, $\frac{3}{4}^{10}$, $\frac{7}{8}^{9}$, 1^{8}, $1\frac{1}{8}^{7}$, $1\frac{1}{4}^{7}$. *Code—Finality*.....**$42.00.**
Taper Taps. Easy Dies. First five sizes $1\frac{13}{16}$ inches in diameter, larger sizes $3\frac{1}{4}$ inches in diameter. Two Stocks 29 inches and 40 inches long. Adjustable Tap Wrench No. 5, 26 inches long. Weight 35 lbs.

No. 61. 9 sizes. $\frac{3}{8}^{16}$, $\frac{7}{16}^{14}$, $\frac{1}{2}^{13}$, $\frac{5}{8}^{11}$, $\frac{3}{4}^{10}$, $\frac{7}{8}^{9}$, 1^{8}, $1\frac{1}{8}^{7}$, $1\frac{1}{4}^{7}$. *Code—Filin*.....**$48.00.**
Taper Taps. Easy Dies. First seven sizes $1\frac{13}{16}$ inches in diameter, larger sizes $3\frac{1}{4}$ inches in diameter. Two (2) Stocks 29 inches and 40 inches long. Adjustable Tap Wrench No. 2, $10\frac{1}{2}$ inches long, and No. 5, 26 inches long. Weight 48 lbs.

No. 62. 6 sizes. $\frac{7}{8}^{9}$, 1^{8}, $1\frac{1}{8}^{7}$, $1\frac{1}{4}^{7}$, $1\frac{3}{8}^{6}$, $1\frac{1}{2}^{6}$. *Code—Fineless*.....**$63.00.**
Taper Taps. Easy Dies $3\frac{1}{4}$ inches in diameter. Stock 53 inches long. Adjustable Tap Wrench No. 5, 26 inches long. Weight 50 lbs.

No. 63. 11 sizes. $\frac{1}{4}^{20}$, $\frac{5}{16}^{18}$, $\frac{3}{8}^{16}$, $\frac{7}{16}^{14}$, $\frac{1}{2}^{13}$, $\frac{5}{8}^{11}$, $\frac{3}{4}^{10}$, $\frac{7}{8}^{9}$, 1^{8}, $1\frac{1}{8}^{7}$, $1\frac{1}{4}^{7}$. *Code—Findraw*.**$60.00.**
Taper Taps. Easy Dies. First nine sizes $1\frac{13}{16}$ inches in diameter, larger sizes $3\frac{1}{4}$ inches in diameter. Two Stocks 29 inches and 40 inches long. Adjustable Tap Wrench No. 2, $10\frac{1}{2}$ inches long, and No. 5, 26 inches long. Weight 53 lbs.

No. 64. 13 sizes. $\frac{1}{4}^{20}$, $\frac{5}{16}^{18}$, $\frac{3}{8}^{16}$, $\frac{7}{16}^{14}$, $\frac{1}{2}^{13}$, $\frac{5}{8}^{11}$, $\frac{3}{4}^{10}$, $\frac{7}{8}^{9}$, 1^{8}, $1\frac{1}{8}^{7}$, $1\frac{1}{4}^{7}$, $1\frac{3}{8}^{6}$, $1\frac{1}{2}^{6}$. *Code—Filler*.....**$82.00.**
Taper Taps. Easy Dies. First nine sizes $1\frac{13}{16}$ inches in diameter, larger sizes $3\frac{1}{4}$ inches in diameter. Two Stocks 29 inches and 53 inches long. Adjustable Tap Wrench No. 2, $10\frac{1}{2}$ inches long, and No. 5, 26 inches long. Weight 55 lbs.

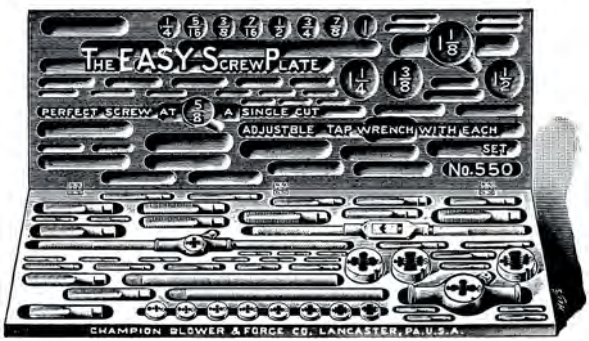
No. 65. 4 sizes. $1\frac{1}{8}^{7}$, $1\frac{1}{4}^{7}$, $1\frac{3}{8}^{6}$, $1\frac{1}{2}^{6}$. *Code—Pilarat*.....**$52.00.**
Taper Taps. Easy Dies $3\frac{1}{4}$ inches in diameter. Stock 53 inches long. Adjustable Tap Wrench No. 5, 26 inches long. Weight 45 lbs.

Unless otherwise ordered, we will send all Screw Plates U. S. Standard thread. Can supply Screw Plates with oversize V, S. A. E. Standard or Whitworth form of thread, at regular prices, when ordered.

THE CHAMPION
EASY MACHINISTS' SCREW PLATES

With Taper, Plug, and Bottoming Taps

Nos. 506, 508, 509 and 550 Easy Sets are Furnished with TWO STOCKS. Every Set is Packed in a Hardwood Case and Furnished with Adjustable Tap Wrench. All Our Taps are Machine-Relieved.


THE EASY SCREW PLATE
PERFECT SCREW AT
A SINGLE CUT
ADJUSTBLE TAP WRENCH WITH EACH SET
No. 550
CHAMPION BLOWER & FORGE CO. LANCASTER, PA. U.S.A.

No. 501. 5 sizes. $\frac{1}{4}$-20, $\frac{5}{16}$-18, $\frac{3}{8}$-16, $\frac{7}{16}$-14, $\frac{1}{2}$-13. *Code—Maker*.....**$17.00.**
Taper, Plug and Bottoming Taps. Easy Dies $1\frac{1}{2}$ inches in diameter. Stock $15\frac{1}{2}$ inches long. Adjustable Tap Wrench No. 2, $10\frac{1}{2}$ inches long. Weight 9 lbs.

No. 506. 7 sizes. $\frac{3}{8}$-16, $\frac{7}{16}$-14, $\frac{1}{2}$-13, $\frac{5}{8}$-11, $\frac{3}{4}$-10, $\frac{7}{8}$-9, 1-8. *Code—Makat*.....**$35.00.**
Taper, Plug and Bottoming Taps. Easy Dies. First two sizes $1\frac{1}{2}$ inches in diameter, larger sizes $1\frac{3}{16}$ inches in diameter. Two Stocks $15\frac{1}{2}$ inches and 26 inches long. Adjustable Tap Wrench No. 4, 20 inches long. Weight 23 lbs.

No. 508. 7 sizes. $\frac{1}{4}$-20, $\frac{5}{16}$-18, $\frac{3}{8}$-16, $\frac{7}{16}$-14, $\frac{1}{2}$-13, $\frac{5}{8}$-11, $\frac{3}{4}$-10. *Code—Makim*.....**$27.00.**
Taper, Plug and Bottoming Taps. Easy Dies. First four sizes $1\frac{1}{2}$ inches in diameter, larger sizes $1\frac{3}{16}$ inches in diameter. Two Stocks $15\frac{1}{2}$ inches and 23 inches long. Adjustable Tap Wrench No. 3, 15 inches long. Weight 20 lbs.

No. 509. 9 sizes. $\frac{1}{4}$-20, $\frac{5}{16}$-18, $\frac{3}{8}$-16, $\frac{7}{16}$-14, $\frac{1}{2}$-13, $\frac{5}{8}$-11, $\frac{3}{4}$-10, $\frac{7}{8}$-9, 1-8. *Code—Makos*.....**$38.00**
Taper, Plug and Bottoming Taps. Easy Dies. First four sizes $1\frac{1}{2}$ inches in diameter, larger sizes $1\frac{3}{16}$ inches in diameter. Two Stocks $15\frac{1}{2}$ inches and 26 inches long. Adjustable Tap Wrench No. 4, 20 inches long. Weight 25 lbs.

No. 550. 13 sizes. $\frac{1}{4}$-20, $\frac{5}{16}$-18, $\frac{3}{8}$-16, $\frac{7}{16}$-14, $\frac{1}{2}$-13, $\frac{5}{8}$-11, $\frac{3}{4}$-10, $\frac{7}{8}$-9, 1-8, $1\frac{1}{8}$-7, $1\frac{1}{4}$-7, $1\frac{3}{8}$-6, $1\frac{1}{2}$-6. *Code—Makus*.....**$90.00.**
Taper, Plug and Bottoming Taps. Easy Dies. First nine sizes $1\frac{13}{16}$ inches in diameter, larger sizes $3\frac{1}{4}$ inches in diameter. Two Stocks 26 inches and 53 inches long. Adjustable Tap Wrench No. 4, 20 inches long. Weight 75 lbs.

Unless otherwise ordered, U. S. Standard form of thread will be sent. Oversize V, S. A. E. Standard or Whitworth forms of thread furnished at same price, if desired.

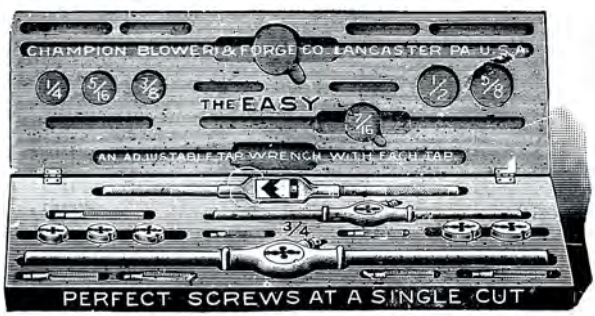
THE CHAMPION EASY SCREW PLATES

With S. A. E. Standard, formerly A. L. A. M., Dies and Taps

NOTICE—Nos. 2A, 5A, 5½A, 7A and 9A Easy Sets are Furnished with TWO STOCKS. Every Set is Packed in a Hardwood Case and Furnished with an Adjustable Tap Wrench. All Our Taps are Machine-Relieved.

No. 1A.

No. 1A. 5 sizes. $\frac{1}{4}^{28}$, $\frac{5}{16}^{24}$, $\frac{3}{8}^{24}$, $\frac{7}{16}^{20}$, $\frac{1}{2}^{20}$. *Code—Feudsae*.....**$13.50.**
Plug Taps. Easy Dies 1½ inches in diameter. Stock 15½ inches long. Adjustable Tap Wrench No. 2, 10½ inches long. Weight 7½ lbs.



No. 7A.

No. 2A. 5 sizes. $\frac{1}{4}^{28}$, $\frac{3}{8}^{24}$, $\frac{1}{2}^{20}$, $\frac{5}{8}^{18}$, $\frac{3}{4}^{16}$. *Code—Fewerfewsae*.....**$17.75.**
Plug Taps. Easy Dies. First two sizes 1½ inches in diameter, larger sizes 1 13/16 inches in diameter. Two Stocks 15½ inches and 23 inches long. Adjustable Tap Wrench No. 3, 15 inches long. Weight 14 lbs.

No. 5A. 7 sizes. $\frac{1}{4}^{28}$, $\frac{5}{16}^{24}$, $\frac{3}{8}^{24}$, $\frac{7}{16}^{20}$, $\frac{1}{2}^{20}$, $\frac{5}{8}^{18}$, $\frac{3}{4}^{16}$. *Code—Fibresae*.....**$21.00.**
Plug Taps. Easy Dies. First four sizes 1½ inches in diameter, larger sizes 1 13/16 inches in diameter. Two Stocks 15½ inches and 23 inches long. Adjustable Tap Wrench No. 3, 15 inches long. Weight 15 lbs.

No. 5½A. 8 sizes. $\frac{1}{4}^{28}$, $\frac{5}{16}^{24}$, $\frac{3}{8}^{24}$, $\frac{7}{16}^{20}$, $\frac{1}{2}^{20}$, $\frac{5}{8}^{18}$, $\frac{3}{4}^{16}$, $\frac{7}{8}^{14}$. *Code—Fibroussae*.....**$23.00.**
Plug Taps. Easy Dies. First four sizes 1½ inches in diameter, larger sizes 1 13/16 inches in diameter. Two Stocks 15½ inches and 23 inches long. Adjustable Tap Wrench No. 3, 15 inches long. Weight 16 lbs.

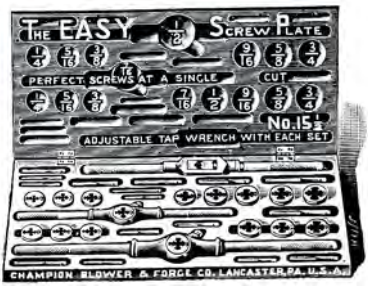
No. 7A. 9 sizes. $\frac{1}{4}^{28}$, $\frac{5}{16}^{24}$, $\frac{3}{8}^{24}$, $\frac{7}{16}^{20}$, $\frac{1}{2}^{20}$, $\frac{5}{8}^{18}$, $\frac{3}{4}^{16}$, $\frac{7}{8}^{14}$, 1^{14}. *Code—Fictilesae*.....**$31.00.**
Plug Taps. Easy Dies. First four sizes 1½ inches in diameter, larger sizes 1 13/16 inches in diameter. Two Stocks 15½ inches and 26 inches long. Adjustable Tap Wrench No. 4, 20 inches long. Weight 18 lbs.

No. 9A. 10 sizes. $\frac{1}{4}^{28}$, $\frac{5}{16}^{24}$, $\frac{3}{8}^{24}$, $\frac{7}{16}^{20}$, $\frac{1}{2}^{20}$, $\frac{9}{16}^{18}$ $\frac{5}{8}^{18}$, $\frac{3}{4}^{16}$, $\frac{7}{8}^{14}$, 1^{14}. *Code—Ficarinesae*.**$33.00.**
Plug Taps. Easy Dies. First four sizes 1½ inches in diameter, larger sizes 1 13/16 inches in diameter. Two Stocks 15½ inches and 26 inches long. Adjustable Tap Wrench No. 4, 20 inches long. Weight 20 lbs.

THE CHAMPION EASY COMBINATION SCREW PLATES

With both U. S. Standard and S. A. E. Standard Taps and Dies

NOTICE—Nos. 12, 15, 15½, 17 and 19 Easy Sets are Furnished with TWO STOCKS. Every Set is Packed in a Hardwood Case and Furnished with an Adjustable Tap Wrench. All Our Taps are Machine-Relieved.


THE EASY
SCREW PLATE
PERFECT SCREWS AT A SINGLE CUT
No. 15½
ADJUSTABLE TAP WRENCH WITH EACH SET
CHAMPION BLOWER & FORGE CO. LANCASTER, PA. U.S.A.

No. 15½.

No. 11. 10 sizes. U. S. Standard, ¼-20, 5/16-18, ⅜-16, 7/16-14, ½-13 with Taper Taps; and S. A. E. Standard ¼-28, 5/16-24, ⅜-24, 7/16-20, ½-20 with Plug Taps. *Code—Fictal* **$21.00.**

Easy Dies 1½ inches in diameter. Stock 15½ inches long. Adjustable Tap Wrench No. 2, 10½ inches long. Weight 17 lbs.

No. 12. 10 sizes. U. S. Standard, ¼-20, ⅜-16, ½-13, ⅝-11, ¾-10 with Taper Taps; and S. A. E. Standard ¼-28, ⅜-24, ½-20, ⅝-18, ¾-16 with Plug Taps. *Code—Fidcar* **$30.00.**

Easy Dies, first two sizes 1½ inches in diameter, larger sizes 1 13/16 inches in diameter. Two Stocks 15½ inches and 23 inches long. Adjustable Tap Wrench No. 3, 15 inches long. Weight 18 lbs.

No. 15. 14 sizes. U. S. Standard, ¼-20, 5/16-18, ⅜-16, 7/16-14, ½-13, ⅝-11, ¾-10 with Taper Taps; and S. A. E. Standard ¼-28, 5/16-24, ⅜-24, 7/16-20, ½-20, ⅝-18, ¾-16 with Plug Taps. *Code—Fieos* **$34.50.**

Easy Dies. First four sizes 1½ inches in diameter, larger sizes 1 13/16 inches in diameter. Two Stocks 15½ inches and 23 inches long. Adjustable Tap Wrench No. 3, 15 inches long. Weight 19 lbs.

No. 15½. 16 sizes. U. S. Standard, ¼-20, 5/16-18, ⅜-16, 7/16-14, ½-13, 9/16-12, ⅝-11, ¾-10 with Taper Taps; and S. A. E. Standard ¼-28, 5/16-24, ⅜-24, 7/16-20, ½-20, 9/16-18, ⅝-18, ¾-16 with Plug Taps. *Code—Fifera* **$42.00.**

Easy Dies. First four sizes 1½ inches in diameter, larger sizes 1 13/16 inches in diameter. Two Stocks 15½ inches and 23 inches long. Adjustable Tap Wrench No. 3, 15 inches long. Weight 22 lbs.

No. 17. 18 sizes. U. S. Standard, ¼-20, 5/16-18, ⅜-16, 7/16-14, ½-13, ⅝-11, ¾-10, ⅞-9, 1-8 with Taper Taps; and S. A. E. Standard ¼-28, 5/16-24, ⅜-24, 7/16-20, ½-20, ⅝-18, ¾-16, ⅞-14, 1-14 with Plug Taps. *Code—Figose* **$52.00.**

Easy Dies. First four sizes 1½ inches in diameter, larger sizes 1 13/16 inches in diameter. Two Stocks 15½ inches and 26 inches long. Adjustable Tap Wrench No. 4, 20 inches long. Weight 23 lbs.

No. 19. 20 sizes. U. S. Standard, ¼-20, 5/16-18, ⅜-16, 7/16-14, ½-13, 9/16-12, ⅝-11, ¾-10, ⅞-9, 1-8 with Taper Taps; and S. A. E. Standard ¼-28, 5/16-24, ⅜-24, 7/16-20, ½-20, 9/16-18, ⅝-18, ¾-16, ⅞-14, 1-14 with Plug Taps. *Code—Fihigo* **$62.00.**

Easy Dies. First four sizes 1½ inches in diameter, larger sizes 1 13/16 inches in diameter. Two Stocks 15½ inches and 26 inches long. Adjustable Tap Wrench No. 4, 20 inches long. Weight 24 lbs.

THE CHAMPION SCREW PLATES

No. 71

CHAMPION EASY FORD
PERFECT SCREW AT A SINGLE CUT
SCREW PLATE
ADJUSTABLE TAP WRENCH
No. 50
WITH EACH SET
CHAMPION BLOWER & FORGE CO. LANCASTER, PA. U. S. A.

No. 50 FORD

No. 70. 5 sizes. $\frac{1}{8}^{40}$, $\frac{5}{32}^{32}$, $\frac{3}{16}^{24}$, $\frac{7}{32}^{24}$, $\frac{1}{4}^{20}$. *Code—Fining*.....**$11.50.**
Plug Taps. Easy Dies and Guides $1\frac{3}{16}$ inch in diameter. Stock 7 inches long. Adjustable Tap Wrench No. 1, 7 inches long. Weight 3 lbs.

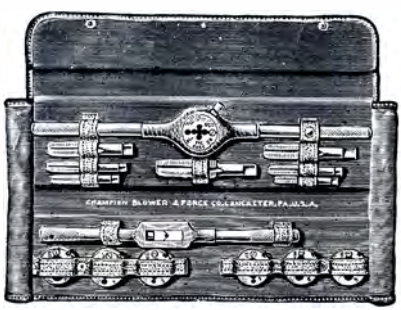
No. 71. 7 sizes. $\frac{7}{64}^{55}$, $\frac{1}{8}^{40}$, $\frac{9}{64}^{40}$, $\frac{5}{32}^{32}$, $\frac{3}{16}^{24}$, $\frac{7}{32}^{24}$, $\frac{1}{4}^{20}$. *Code—Fitchet*.....**$13.50.**
Plug Taps. Easy Dies and Guides $1\frac{3}{16}$ inch in diameter. Stock 7 inches long. Adjustable Tap Wrench No. 1, 7 inches long. Weight $3\frac{1}{4}$ lbs.

No. 50 Champion Easy Ford Screw Plate, cutting S. A. E. Thread. Has Taps and Dies for cutting threads on practically all Bolts, Nuts and Screws on Ford Automobiles. Also adapted for other moderate priced cars.

No. 50. 7 sizes. $\frac{1}{4}^{28}$, $\frac{5}{16}^{24}$, $\frac{3}{8}^{24}$, $\frac{13}{32}^{16}$, $\frac{7}{16}^{14}$, $\frac{7}{16}^{20}$, $\frac{1}{2}^{20}$. *Code—Soat*.....**$17.00.**
Plug Taps. Easy Dies $1\frac{1}{2}$ inches in diameter. Stock 16 inches long. Adjustable Tap Wrench No. 2, $10\frac{1}{2}$ inches long. Weight 8 lbs.

THE CHAMPION EASY SCREW PLATES IN LEATHER ROLLS

The Champion Easy Screw Plates in leather rolls are made specially for the garage and repair trade, and are very convenient for placing in the car, or to take out on repair trips. These sets are furnished with our well-known Easy Die which makes a perfect thread at a single cut, and ranks among the highest, the die being adjustable by the use of a taper-head screw with a taper nut, thus being braced on both sides of the die, making it perfectly rigid and solid.



No. 111. 5 sizes. $\frac{1}{4}^{28}$, $\frac{5}{16}^{24}$, $\frac{3}{8}^{24}$, $\frac{7}{16}^{20}$, $\frac{1}{2}^{20}$. *Code—Leath rsae*.....**$13.50.**
Plug Taps. Easy Dies $1\frac{1}{2}$ inches in diameter. Stock 9 inches long. Adjustable Tap Wrench No. 2, $10\frac{1}{2}$ inches long. Weight 4 lbs.

No. 115. 7 sizes. $\frac{1}{4}^{28}$, $\frac{5}{16}^{24}$, $\frac{3}{8}^{24}$, $\frac{7}{16}^{20}$, $\frac{1}{2}^{20}$, $\frac{9}{16}^{18}$, $\frac{5}{8}^{18}$. *Code—Leather*.....**$20.50.**
Plug Taps. Easy Dies $1\frac{1}{2}$ inches in diameter. Stock 14 inches long. Adjustable Tap Wrench No. 2, $10\frac{1}{2}$ inches long. Weight $4\frac{1}{2}$ lbs.

These Sets are regularly furnished S. A. E. (A. L. A. M.), but can be furnished if specially ordered in "V", U. S. S., or Whitworth form of thread.

No. 120. 16 sizes. 6^{32}, 10^{24}, 10^{32}, 12^{24}, 14^{24}, $\frac{7}{32}^{32}$, $\frac{1}{4}^{20}$, $\frac{5}{16}^{18}$, $\frac{5}{16}^{24}$, $\frac{3}{8}^{16}$, $\frac{3}{8}^{24}$, $\frac{13}{32}^{16}$, $\frac{7}{16}^{14}$, $\frac{7}{16}^{20}$, $\frac{1}{2}^{20}$, and $\frac{1}{8}$ pipe. *Code—Leatherette*.....**$24.50.**
Plug Taps. Easy Dies $1\frac{1}{2}$ inches in diameter. Stock 9 inches long. Adjustable Tap Wrench No. 2, $10\frac{1}{2}$ inches long. Weight 5 lbs.

The No. 120 Plate complete in leather roll is furnished in sizes assorted with special reference to Ford Automobile, Model T.

We can supply all above sets in wooden cases at the same price.

THE CHAMPION
EASY FULL-MOUNTED SCREW PLATE

NOTICE—Every Set is Packed in a Hardwood Case and Supplied with an Adjustable Tap Wrench. All Our Taps are Machine-Relieved.

No 51. 5 sizes. $\frac{1}{4}^{20}$, $\frac{5}{16}^{18}$, $\frac{3}{8}^{16}$, $\frac{7}{16}^{14}$, $\frac{1}{2}^{13}$. *Code—Finance*.....**$16.50.**
Taper Taps. Easy Dies. Separate Stock for each die. Adjustable Tap Wrench No. 2, 10½ inches long. Weight 18 lbs.

No. 52. 5 sizes. $\frac{1}{4}^{20}$, $\frac{3}{8}^{16}$, $\frac{1}{2}^{13}$, $\frac{5}{8}^{11}$, $\frac{3}{4}^{10}$. *Code—Fince*.....**$21.00.**
Taper Taps. Easy Dies. Separate Stock for each die. Adjustable Tap Wrench No. 3, 15 inches long. Weight 28 lbs.

No. 53. 4 sizes. $\frac{5}{8}^{11}$, $\frac{3}{4}^{10}$, $\frac{7}{8}^{9}$, 1^{8}. *Code—Finder*.....**$26.00.**
Taper Taps. Easy Dies. Separate Stock for each die. Adjustable Tap Wrench No. 4, 20 inches long. Weight 28 lbs.

No. 54. 5 sizes. $\frac{1}{2}^{13}$, $\frac{5}{8}^{11}$, $\frac{3}{4}^{10}$, $\frac{7}{8}^{9}$, 1^{8}. *Code—Fine*.....**$30.00.**
Taper Taps. Easy Dies. Separate Stock for each die. Adjustable Tap Wrench No. 4, 20 inches long. Weight 33 lbs.

No. 54½. 6 sizes. $\frac{1}{4}^{20}$, $\frac{5}{16}^{18}$, $\frac{3}{8}^{16}$, $\frac{7}{16}^{14}$, $\frac{1}{2}^{13}$, $\frac{5}{8}^{11}$. *Code—Finonser*.....**$25.50.**
Taper Taps. Easy Dies. Separate Stock for each die. Adjustable Tap Wrench No. 3, 15 inches long. Weight 29 lbs.

No. 55. 7 sizes. $\frac{1}{4}^{20}$, $\frac{5}{16}^{18}$, $\frac{3}{8}^{16}$, $\frac{7}{16}^{14}$, $\frac{1}{2}^{13}$, $\frac{5}{8}^{11}$, $\frac{3}{4}^{10}$. *Code—Finable*.....**$28.00.**
Taper Taps. Easy Dies. Separate Stock for each die. Adjustable Tap Wrench No. 3, 15 inches long. Weight 30 lbs.

No. 55½. 8 sizes. $\frac{1}{4}^{20}$, $\frac{5}{16}^{18}$, $\frac{3}{8}^{16}$, $\frac{7}{16}^{14}$, $\frac{1}{2}^{13}$, $\frac{9}{16}^{12}$, $\frac{5}{8}^{11}$, $\frac{3}{4}^{10}$. *Code—Finery*.....**$30.25.**
Taper Taps. Easy Dies. Separate Stock for each die. Adjustable Tap Wrench No. 3, 15 inches long. Weight 31 lbs.

No. 56. 7 sizes. $\frac{3}{8}^{16}$, $\frac{7}{16}^{14}$, $\frac{1}{2}^{13}$, $\frac{5}{8}^{11}$, $\frac{3}{4}^{10}$, $\frac{7}{8}^{9}$, 1^{8}. *Code—Firth*.....**$41.00.**
Taper Taps. Easy Dies. Separate Stock for each die. Adjustable Tap Wrench No. 4, 20 inches long. Weight 35 lbs.

No. 57. 9 sizes. $\frac{1}{4}^{20}$, $\frac{5}{16}^{18}$, $\frac{3}{8}^{16}$, $\frac{7}{16}^{14}$, $\frac{1}{2}^{13}$, $\frac{5}{8}^{11}$, $\frac{3}{4}^{10}$, $\frac{7}{8}^{9}$, 1^{8}. *Code—Fish*.....**$43.50.**
Taper Taps. Easy Dies. Separate Stock for each die. Adjustable Tap Wrench No. 4, 20 inches long. Weight 42 lbs.

No. 57½. 10 sizes. $\frac{1}{4}^{20}$, $\frac{5}{16}^{18}$, $\frac{3}{8}^{16}$, $\frac{7}{16}^{14}$, $\frac{1}{2}^{13}$, $\frac{9}{16}^{12}$, $\frac{5}{8}^{11}$, $\frac{3}{4}^{10}$, $\frac{7}{8}^{9}$, 1^{8}. *Code—Final*.....**$45.75.**
Taper Taps. Easy Dies. Separate Stock for each die. Adjustable Tap Wrench No. 4, 20 inches long. Weight 45 lbs.

Unless otherwise ordered, we will send all Screw Plates U. S. Standard thread. Can supply Screw Plates with oversize V, S. A. E. Standard, or Whitworth form of thread, at regular prices, when ordered.

ALL OUR PLATES WARRANTED

THE CHAMPION ORDNANCE SCREW PLATE DIE

The Die is a two-piece die which is held in the stock as solid as a one-piece die, cutting a perfect thread at a single cut.

Each Die is attached to its own guide by means of a hinge screw which enables the mechanic to handle the die and guide as a unit.

The stock clamps around the die making every die as solid as a one-piece die, yet has all the adjustments of a two-piece die.

The adjusting screw when flush with the top of the die cuts exact size threads. By turning this adjusting screw slightly below the surface of the die oversize threads are cut, and when the adjusting screw is turned slightly above the surface of the die undersize threads are cut. In other words a tight, loose or exact thread can be cut with the same die.

All Champion Screw Plate Dies are reversible so that they will start cutting from either top or bottom.

Champion Ordnance Dies are all one diameter fitting the stock which is light and powerful.

The stocks and tap wrenches are knurled and mottled.

The jaws on Champion Tap Wrenches are hardened steel and will last a life time.

Every set of Champion Screw Plates are fully guaranteed to cut a perfect thread at single cut.

CHAMPION ORDNANCE SCREW PLATES

U. S. Standard Sets

Every Set is Packed in a Hardwood Case and Supplied with an Adjustable Tap Wrench. All Our Taps are Machine-Relieved.

No. 301B. 5 sizes. $\frac{1}{4}^{20}$, $\frac{5}{16}^{18}$, $\frac{3}{8}^{16}$, $\frac{7}{16}^{14}$, $\frac{1}{2}^{13}$. *Code—Sap*.....**$18.00.**
Taper Taps. Ordnance Dies $2\frac{3}{16}$ inches in diameter. Stock 18 inches long. Adjustable Tap Wrench No. 2, $10\frac{1}{2}$ inches long. Weight $10\frac{1}{2}$ lbs.

No. 301½B. 6 sizes. $\frac{1}{4}^{20}$, $\frac{5}{16}^{18}$, $\frac{3}{8}^{16}$, $\frac{7}{16}^{14}$, $\frac{1}{2}^{13}$, $\frac{5}{8}^{11}$. *Code—Saha*.....**$24.50.**
Taper Taps. Ordnance Dies $2\frac{3}{16}$ inches in diameter. Stock 18 inches long. Adjustable Tap Wrench No. 2, $10\frac{1}{2}$ inches long. Weight 13 lbs.

No. 302B. 5 sizes. $\frac{1}{4}^{20}$, $\frac{3}{8}^{16}$, $\frac{1}{2}^{13}$, $\frac{5}{8}^{11}$, $\frac{3}{4}^{10}$. *Code—Salar*.....**$22.75.**
Taper Taps. Ordnance Dies $2\frac{3}{16}$ inches in diameter. Stock 23 inches long. Adjustable Tap Wrench No. 3, 15 inches long. Weight 12 lbs.

No. 305B. 7 sizes. $\frac{1}{4}^{20}$, $\frac{5}{16}^{18}$, $\frac{3}{8}^{16}$, $\frac{7}{16}^{14}$, $\frac{1}{2}^{13}$, $\frac{5}{8}^{11}$, $\frac{3}{4}^{10}$. *Code—Samon*.....**$27.50.**
Taper Taps. Ordnance Dies $2\frac{3}{16}$ inches in diameter. Stock 23 inches long. Adjustable Tap Wrench No. 3, 15 inches long. Weight 15 lbs.

No. 305½B. 8 sizes. $\frac{1}{4}^{20}$, $\frac{5}{16}^{18}$, $\frac{3}{8}^{16}$, $\frac{7}{16}^{14}$, $\frac{1}{2}^{13}$, $\frac{9}{16}^{12}$, $\frac{5}{8}^{11}$, $\frac{3}{4}^{10}$. *Code—Sase*.....**$30.75.**
Taper Taps. Ordnance Dies $2\frac{3}{16}$ inches in diameter. Stock 23 inches long. Adjustable Tap Wrench No. 3, 15 inches long. Weight $17\frac{1}{2}$ lbs.

No. 307B. 9 sizes. $\frac{1}{4}^{20}$, $\frac{5}{16}^{18}$, $\frac{3}{8}^{16}$, $\frac{7}{16}^{14}$, $\frac{1}{2}^{13}$, $\frac{5}{8}^{11}$, $\frac{3}{4}^{10}$, $\frac{7}{8}^{9}$, 1^{8}. *Code—Sare*.....**$42.00.**
Taper Taps. Ordnance Dies $2\frac{3}{16}$ inches in diameter. Stock 26 inches long. Adjustable Tap Wrench No. 4, 20 inches long. Weight 21 lbs.

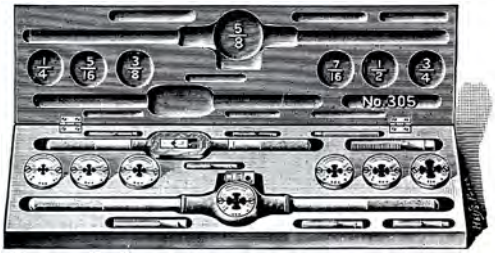
No. 309B. 10 sizes. $\frac{1}{4}^{20}$, $\frac{5}{16}^{18}$, $\frac{3}{8}^{16}$, $\frac{7}{16}^{14}$, $\frac{1}{2}^{13}$, $\frac{5}{8}^{11}$, $\frac{3}{4}^{10}$, $\frac{7}{8}^{9}$, 1^{8}. *Code—Saw*.....**$44.25.**
Taper Taps. Ordnance Dies $2\frac{3}{16}$ inches in diameter. Stock 26 inches long. Adjustable Tap Wrench No. 4, 20 inches long. Weight 22 lbs.

Unless otherwise ordered we will send all Screw Plates U. S. Standard thread. Can be furnished with oversize V, or Whitworth form of thread, at the same price when so ordered.

CHAMPION ORDNANCE SCREW PLATES

S. A. E. Sets

Every Set is Packed in a Hardwood Case and Supplied with an Adjustable Tap Wrench. All Our Taps are Machine-Relieved.



No. 301A. 5 sizes. $\frac{1}{4}^{28}$, $\frac{5}{16}^{24}$, $\frac{3}{8}^{24}$, $\frac{7}{16}^{20}$, $\frac{1}{2}^{20}$. *Code—Sebus*.....**$18.00.**
Plug Taps. Ordnance Dies 2 $\frac{3}{16}$ inches in diameter. Stock 18 inches long. Adjustable Tap Wrench No. 2, 10½ inches long. Weight 10½ lbs.

No. 301½A. 6 sizes. $\frac{1}{4}^{28}$, $\frac{5}{16}^{24}$, $\frac{3}{8}^{24}$, $\frac{7}{16}^{20}$, $\frac{1}{2}^{20}$, $\frac{5}{8}^{18}$. *Code—Sebom*.....**$24.50.**
Plug Taps. Ordnance Dies 2 $\frac{3}{16}$ inches in diameter. Stock 18 inches long. Adjustable Tap Wrench No. 2, 10½ inches long. Weight 13 lbs.

No. 302A. 5 sizes. $\frac{1}{4}^{28}$, $\frac{3}{8}^{24}$, $\frac{1}{2}^{20}$, $\frac{5}{8}^{18}$, $\frac{3}{4}^{16}$. *Code—Sebur*.....**$22.75.**
Plug Taps. Ordnance Dies 2 $\frac{3}{16}$ inches in diameter. Stock 23 inches long. Adjustable Tap Wrench No. 3, 15 inches long. Weight 12 lbs.

No. 305A. 7 sizes. $\frac{1}{4}^{28}$, $\frac{5}{16}^{24}$, $\frac{3}{8}^{24}$, $\frac{7}{16}^{20}$, $\frac{1}{2}^{20}$, $\frac{5}{8}^{18}$, $\frac{3}{4}^{16}$. *Code—Sede*.....**$27.50.**
Plug Taps. Ordnance Dies 2 $\frac{3}{16}$ inches in diameter. Stock 23 inches long. Adjustable Tap Wrench No. 3, 15 inches long. Weight 15 lbs.

No. 305½A. 8 sizes. $\frac{1}{4}^{28}$, $\frac{5}{16}^{24}$, $\frac{3}{8}^{24}$, $\frac{7}{16}^{20}$, $\frac{1}{2}^{20}$, $\frac{5}{8}^{18}$, $\frac{5}{8}^{18}$, $\frac{3}{4}^{16}$. *Code—Seha*.....**$30.75.**
Plug Taps. Ordnance Dies 2 $\frac{3}{16}$ inches in diameter. Stock 23 inches long. Adjustable Tap Wrench No. 3, 15 inches long. Weight 17½ lbs.

No. 307A. 9 sizes. $\frac{1}{4}^{28}$, $\frac{5}{16}^{24}$, $\frac{3}{8}^{24}$, $\frac{7}{16}^{20}$, $\frac{1}{2}^{20}$, $\frac{5}{8}^{18}$, $\frac{3}{4}^{16}$, $\frac{7}{8}^{14}$, 1^{14}. *Code—Sehor*.....**$42.00.**
Plug Taps. Ordnance Dies 2 $\frac{3}{16}$ inches in diameter. Stock 26 inches long. Adjustable Tap Wrench No. 4, 20 inches long. Weight 21 lbs.

No. 309A. 10 sizes. $\frac{1}{4}^{28}$, $\frac{5}{16}^{24}$, $\frac{3}{8}^{24}$, $\frac{7}{16}^{20}$, $\frac{1}{2}^{20}$, $\frac{9}{16}^{18}$, $\frac{5}{8}^{18}$, $\frac{3}{4}^{16}$, $\frac{7}{8}^{14}$, 1^{14}. *Code—Sehus*..**$44.25.**
Plug Taps. Ordnance Dies 2 $\frac{3}{16}$ inches in diameter. Stock 26 inches long. Adjustable Tap Wrench No. 4, 20 inches long. Weight 22 lbs.

CHAMPION ORDNANCE SCREW PLATES

Combination U. S. Standard and S. A. E. Sets

Every Set is Packed in a Hardwood Case and Supplied with an Adjustable Tap Wrench. All Our Taps are Machine-Relieved.

No. 311. 10 sizes. U. S. Standard, $\frac{1}{4}^{20}$, $\frac{5}{16}^{18}$, $\frac{3}{8}^{16}$, $\frac{7}{16}^{14}$, $\frac{1}{2}^{13}$ with Taper Taps; and S. A. E. Standard $\frac{1}{4}^{28}$, $\frac{5}{16}^{24}$, $\frac{3}{8}^{24}$, $\frac{7}{16}^{20}$, $\frac{1}{2}^{20}$ with Plug Taps. *Code—Sos*.....**$29.25.**
Ordnance Dies $2\frac{3}{16}$ inches in diameter. Stock 18 inches long. Adjustable Tap Wrench No. 2, $10\frac{1}{2}$ inches long. Weight 18 lbs.

No. 315. 14 sizes. U. S. Standard, $\frac{1}{4}^{20}$, $\frac{5}{16}^{18}$, $\frac{3}{8}^{16}$, $\frac{7}{16}^{14}$, $\frac{1}{2}^{13}$, $\frac{5}{8}^{11}$, $\frac{3}{4}^{10}$ with Taper Taps; and S. A. E. Standard $\frac{1}{4}^{28}$, $\frac{5}{16}^{24}$, $\frac{3}{8}^{24}$, $\frac{7}{16}^{20}$, $\frac{1}{2}^{20}$, $\frac{5}{8}^{18}$, $\frac{3}{4}^{16}$ with Plug Taps. *Code—Soram*.....**$52.50.**
Ordnance Dies $2\frac{3}{16}$ inches in diameter. Stock 23 inches long. Adjustable Tap Wrench No. 3, 15 inches long. Weight 26 lbs.

No. 315½. 16 sizes. U. S. Standard, $\frac{1}{4}^{20}$, $\frac{5}{16}^{18}$, $\frac{3}{8}^{16}$, $\frac{7}{16}^{14}$, $\frac{1}{2}^{13}$, $\frac{9}{16}^{12}$, $\frac{5}{8}^{11}$, $\frac{3}{4}^{10}$ with Taper Taps; and S. A. E. Standard $\frac{1}{4}^{28}$, $\frac{5}{16}^{24}$, $\frac{3}{8}^{24}$, $\frac{7}{16}^{20}$, $\frac{1}{2}^{20}$, $\frac{5}{8}^{18}$, $\frac{3}{4}^{16}$ with Plug Taps. *Code—Somas*.....**$56.00.**
Ordnance Dies $2\frac{3}{16}$ inches in diameter. Stock 23 inches long. Adjustable Tap Wrench No. 3, 15 inches long. Weight 27 lbs.

No. 317. 18 sizes. $\frac{1}{4}^{20}$, $\frac{5}{16}^{18}$, $\frac{3}{8}^{16}$, $\frac{7}{16}^{14}$, $\frac{1}{2}^{13}$, $\frac{5}{8}^{11}$, $\frac{3}{4}^{10}$, $\frac{7}{8}^{9}$, 1^{8}, with Taper Taps; and S. A. E. Standard $\frac{1}{4}^{28}$, $\frac{5}{16}^{24}$, $\frac{3}{8}^{24}$, $\frac{7}{16}^{20}$, $\frac{1}{2}^{20}$, $\frac{5}{8}^{18}$, $\frac{3}{4}^{16}$, $\frac{7}{8}^{14}$, 1^{14} with Plug Taps. *Code—Solar*.....**$75.00.**
Ordnance Dies $2\frac{3}{16}$ inches in diameter. Stock 26 inches long. Adjustable Tap Wrench No. 4, 20 inches long. Weight 36 lbs.

No. 319. 20 sizes. $\frac{1}{4}^{20}$, $\frac{5}{16}^{18}$, $\frac{3}{8}^{16}$, $\frac{7}{16}^{14}$, $\frac{1}{2}^{13}$, $\frac{9}{16}^{12}$, $\frac{5}{8}^{11}$, $\frac{3}{4}^{10}$, $\frac{7}{8}^{9}$, 1^{8}, with Taper Taps; and S. A. E. Standard $\frac{1}{4}^{28}$, $\frac{5}{16}^{24}$, $\frac{3}{8}^{24}$, $\frac{7}{16}^{20}$, $\frac{1}{2}^{20}$, $\frac{9}{16}^{18}$, $\frac{5}{8}^{18}$, $\frac{3}{4}^{16}$, $\frac{7}{8}^{14}$, 1^{14} with Plug Taps. *Code—Socas*.....**$79.00.**
Ordnance Dies $2\frac{3}{16}$ inches in diameter. Stock 26 inches long. Adjustable Tap Wrench No. 4, 20 inches long. Weight 40 lbs.

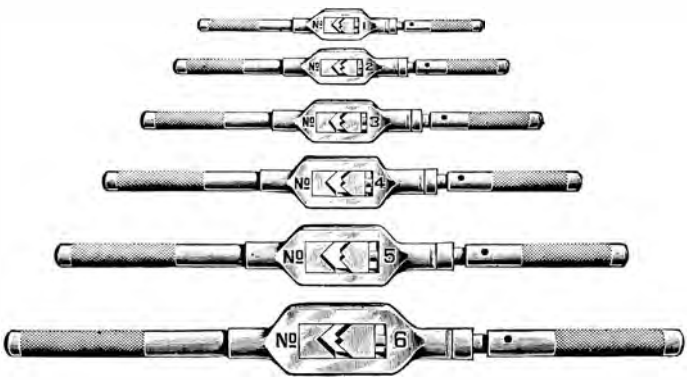
THE CHAMPION PATENTED ELECTRIC ADJUSTABLE TAP WRENCH

The above cut illustrates our Electric Adjustable Tap Wrench, which we believe to be a perfect tool. It will be seen that the Wrench is built "Hub" Shape "Round." The adjustable squares or sockets to hold the taps in wrench are made to fit all sizes of taps, as designated by numbers in list below. This wrench not only holds all sizes of taps solid and firm, but the taps always remain in the center of the wrench, consequently never becomes top-heavy or side-heavy, as is the case with all other wrenches which take in different sizes of taps with the same socket.

LIST

No. 1.	$\frac{1}{4}$, $\frac{5}{16}$, $\frac{3}{8}$, $\frac{7}{16}$, $\frac{1}{2}$.	*Code—Figurative*	**$2.00**
No. 2.	$\frac{1}{4}$, $\frac{5}{16}$, $\frac{3}{8}$, $\frac{7}{16}$, $\frac{1}{2}$, $\frac{5}{8}$, $\frac{3}{4}$.	*Code—Figure*	**2.50**
No. 3.	$\frac{1}{4}$, $\frac{5}{16}$, $\frac{3}{8}$, $\frac{7}{16}$, $\frac{1}{2}$, $\frac{5}{8}$, $\frac{3}{4}$, $\frac{7}{8}$, 1.	*Code—Filament*	**3.50**

THE CHAMPION ADJUSTABLE TAP WRENCH



The Champion Adjustable Tap Wrench is well built and substantial and is highly recommended to all those desiring an up-to-date Tap Wrench at a reasonable price.

These Tap Wrenches are light, strong and durable with workmanship of the highest order. The jaws are made of the highest grade tool steel, which centralizes the Tap in the holder. The stocks are gunlock finished, the handles are knurled. These Tap Wrenches are made in eight sizes, six of which are illustrated.

The Champion Adjustable Tap Wrenches, are furnished with all Screw Plates without extra cost.

No. 1,	$\frac{1}{16}$ **in. to** $\frac{1}{4}$ **in. Length 7 inches.**	*Code—Federfass*	**$ 1.50**
No. 2,	$\frac{3}{16}$ **in. to** $\frac{1}{2}$ **in. Length 10½ inches.**	*Code—Feculences*	**2.00**
No. 3,	$\frac{1}{4}$ **in. to** $\frac{3}{4}$ **in. Length 15 inches.**	*Code—Fecundates*	**2.50**
No. 4,	$\frac{1}{4}$ **in. to 1 in. Length 20 inches.**	*Code—Filibustus*	**3.50**
No. 5,	$\frac{1}{2}$ **in. to 1** $\frac{1}{4}$ **in. Length 26 inches.**	*Code—Filigrees*	**6.50**
No. 6,	$\frac{3}{4}$ **in. to 1** $\frac{1}{2}$ **in. Length 34 inches.**	*Code—Fillipeens*	**8.00**
No. 7,	**1 in. to 2 in. Length 40 inches.**	*Code—Fillonse*	**12.00**
No. 8,	**1** $\frac{1}{4}$ **in. to 2½ in. Length 54 inches.**	*Code—Filleran*	**15.00**

THE CHAMPION PUMPMAKER'S STOCKS AND DIES

The Champion Triple Pumpmaker's Stock, with three dies complete. Cutting $\frac{3}{8}$[14], $\frac{7}{16}$[12], $\frac{1}{2}$[12]..... **$6.00**

The Champion Double Pumpmaker's Stock, with two dies complete. Cutting $\frac{3}{8}$[14], $\frac{7}{16}$[12]..... **$4.00**

$\frac{3}{8}$[14] Die and Stock, complete..... **$2.00**
$\frac{7}{16}$[12] Die and Stock, complete..... **2.20**
$\frac{1}{2}$[12] Die and Stock, complete..... **2.70**

All Pump Dies will be sent U. S. Standard thread unless otherwise ordered.

THE CHAMPION BIT-BRACE DIE HOLDER

A very convenient tool for pump makers, carriage makers and for hundreds of other purposes such as recutting bolts without removing them from their places, sometimes a saving of lots of trouble and expense in taking apart.

The Die is adjustable, allowing a take-up for all wear, making a perfect thread at a single cut. Size $\frac{3}{16}$ to $\frac{1}{2}$ inch.

PRICES

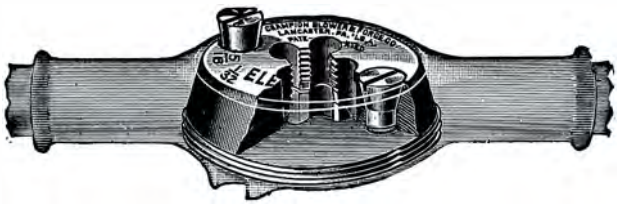
	3/16 in.	1/4 in.	5/16 in.	3/8 in.	7/16 in.	1/2 in.
Die and Holder, complete	**$2.00**	2.00	2.00	2.15	2.39	2.50
Die only	1.00	1.00	1.00	1.15	1.30	1.50

Holders, separately, each..... **$1.00**

Will send above Dies U. S. Standard thread, unless otherwise ordered.

THE CHAMPION
FULL-MOUNTED ELECTRIC SCREW PLATE

IN PARTS



PRICE LIST OF PARTS

Size.	Dies.	Guides.	Stocks.
3/16	$1.00	$0.20	$1.00
1/4	1.00	.20	1.00
5/16	1.00	.20	1.00
3/8	1.15	.20	1.25
7/16	1.30	.20	1.25
1/2	1.50	.20	1.50
9/16	1.75	.20	1.50
5/8	1.90	.20	2.00
11/16	2.10	.20	2.00
3/4	2.35	.20	2.00
13/16	2.60	.20	2.25
7/8	3.00	.20	2.25
15/16	3.40	.20	2.25
1	3.75	.20	2.25

PRICES OF ELECTRIC STOCKS USED ON THE ELECTRIC PLATES ONLY

No. 1 Electric Stock, Length 18 Inches $2.00
No. 2 " " " 23 " 2.50
No. 3 " " " 29 " 3.00
No. 4 " " " 40 " 5.00
No. 5 " " " 53 " 7.00

Collet and Guide Complete for No. 1 to No. 9 Electric Screw Plates, or from 1/4 to 1 Inch, each, ... 1.00
Electric Collets, including 1 1/8 to 1 1/2 Inches, Complete with Guide, each, ... 5.00
Electric Guides, 1/2 to 1 Inch, each, ... .25
Electric Guides, 1 1/8 to 1 1/4 Inches, each, ... 1.00

THE CHAMPION
FULL-MOUNTED EASY SCREW PLATE

IN PARTS

PRICE LIST OF PARTS

Size.	Dies.	Stocks.
3/16	$1.00	$1.00
1/4	1.00	1.00
5/16	1.00	1.00
3/8	1.15	1.25
7/16	1.30	1.25
1/2	1.50	1.50
9/16	1.75	1.50
5/8	1.90	2.00
11/16	2.10	2.00
3/4	2.35	2.00
13/16	2.60	2.25
7/8	3.00	2.25
15/16	3.40	2.25
1	3.75	2.25

EASY A OR B STOCKS

No. 1 Easy Stock, 16 Inches long $1.80
No. 2 " " 23 " " 2.25
No. 3 " " 29 " " 2.50
No. 4 " " 40 " " 4.50
No. 5 " " 53 " " 6.50

Easy Guides, 1/4 to 1 Inch each ..... .20
Easy Guides, including 1 1/8 to 1 1/2 Inches each 1.00

THE CHAMPION ORDNANCE SCREW PLATES

IN PARTS

PRICE LIST OF PARTS

Size.	Dies.	Guides.
$\frac{3}{16}$	$1.00	$0.20
$\frac{1}{4}$	1.00	.20
$\frac{5}{16}$	1.00	.20
$\frac{3}{8}$	1.15	.20
$\frac{7}{16}$	1.30	.20
$\frac{1}{2}$	1.50	.20
$\frac{9}{16}$	1.75	.20
$\frac{5}{8}$	1.90	.20
$\frac{11}{16}$	2.10	.20
$\frac{3}{4}$	2.35	.20
$\frac{13}{16}$	2.60	.20
$\frac{7}{8}$	3.00	.20
$\frac{15}{16}$	3.40	.20
1	3.75	.20

Ordnance Stock $2.50

ELECTRIC AND EASY TAPS AND DIES

All Our Taps are Machine-Relieved

Taper

Plug

Bottoming

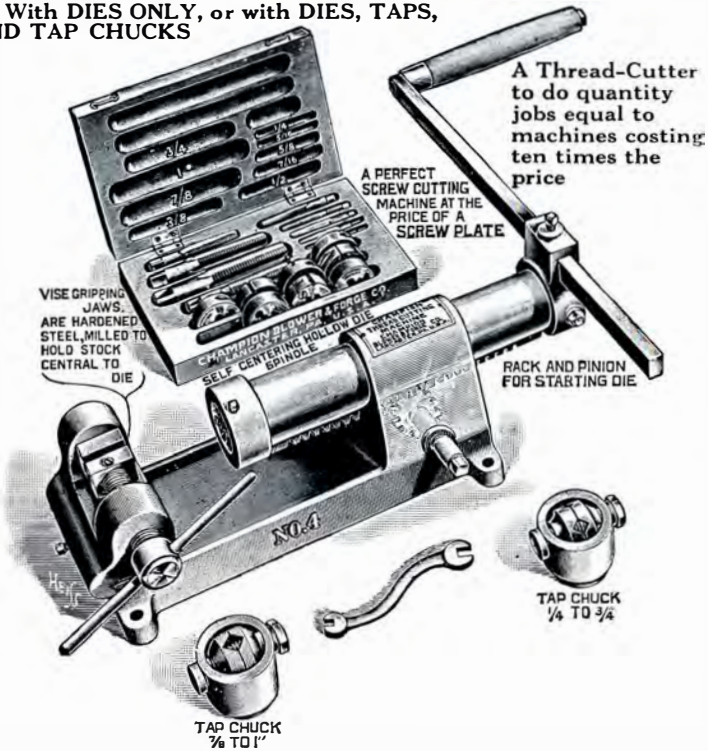
Taper Hand Nut Taps furnished with all of our plates. Plug or Bottoming Taps furnished if specially ordered.

When ordering Dies always mention which style is wanted, and to avoid mistakes always give diameter of the Die wanted, or the number of the plate for which the Die is wanted.

Sizes.	U. S. S.	V. and Whitworth	S. A. E.	Taps.	Electric and Easy Dies.
3/16	24	24	..	$0.45	$1.00
1/4	20	20	28	.45	1.00
5/16	18	18	24	.50	1.00
3/8	16	16	24	.55	1.15
7/16	14	14	20	.60	1.30
1/2	13	12	20	.70	1.50
9/16	12	12	18	.80	1.75
5/8	11	11	18	.90	1.90
11/16	11	11	16	1.05	2.10
3/4	10	10	16	1.20	2.35
13/16	10	10	..	1.40	2.60
7/8	9	9	14	1.60	3.00
15/16	9	9	..	1.80	3.40
1	8	8	14	2.00	3.75
1 1/8	7	7	12	2.25	4.40
1 1/4	7	7	12	2.60	5.00
1 3/8	6	6	12	3.00	5.75
1 1/2	6	6	12	3.50	7.00

THE CHAMPION THREAD-CUTTING MACHINE

With DIES ONLY, or with DIES, TAPS, AND TAP CHUCKS


A Thread-Cutter to do quantity jobs equal to machines costing ten times the price
A PERFECT SCREW CUTTING MACHINE AT THE PRICE OF A SCREW PLATE
VISE GRIPPING JAWS, ARE HARDENED STEEL, MILLED TO HOLD STOCK CENTRAL TO DIE
CHAMPION BLOWER & FORGE CO.
SELF CENTERING HOLLOW DIE SPINDLE
RACK AND PINION FOR STARTING DIE
NO. 4
TAP CHUCK 1/4 TO 3/4
TAP CHUCK 7/8 TO 1"

The Champion Thread-Cutting Machine is a practical tool representing ingenuity in the art of cutting threads to the extent that no iron-worker can afford to do without it. The Champion Thread-Cutting Machine is furnished at a price so reasonable that it produces a new outfit for one who is not already supplied with some machine representing greater investment. It has a rack for starting the thread on the bolt instantly and with the long-leveraged crank which can be shortened or lengthened according to the work, the mechanical eye at once discovers that this is just the machine he wants to place any shop in shape to meet all competition.

No. 1 Champion Thread-Cutting Machine with Dies Only, Cutting $\frac{1}{4}^{20}$, $\frac{5}{16}^{18}$, $\frac{3}{8}^{16}$, $\frac{7}{16}^{14}$, $\frac{1}{2}^{13}$, $\frac{5}{8}^{11}$ **and** $\frac{3}{4}^{10}$ **inch. Weight 60 lbs.** *Code—Fortlet*.....**$30.00**

No. 2 Champion Thread-Cutting Machine with Dies Only, Cutting $\frac{1}{4}^{20}$, $\frac{5}{16}^{18}$, $\frac{3}{8}^{16}$, $\frac{7}{16}^{14}$, $\frac{1}{2}^{13}$, $\frac{5}{8}^{11}$, $\frac{3}{4}^{10}$, $\frac{7}{8}^{9}$ **and** 1^{8} **inch. Weight 65 lbs.** *Code—Forult*..... 36.00

No. 3 Champion Thread-Cutting Machine with Dies, Taps and Tap Chuck, complete, Cutting $\frac{1}{4}^{20}$, $\frac{5}{16}^{18}$, $\frac{3}{8}^{16}$, $\frac{7}{16}^{14}$, $\frac{1}{2}^{13}$, $\frac{5}{8}^{11}$ **and** $\frac{3}{4}^{10}$ **inch. Weight 70 lbs.** *Code—Forbata*. 40.00

No. 4 Champion Thread-Cutting Machine with Dies, Taps and Two Tap Chucks, complete, Cutting $\frac{1}{4}^{20}$, $\frac{5}{16}^{18}$, $\frac{3}{8}^{16}$, $\frac{7}{16}^{14}$, $\frac{1}{2}^{13}$, $\frac{5}{8}^{11}$, $\frac{3}{4}^{10}$, $\frac{7}{8}^{9}$ **and** 1^{8} **inch. Weight 75 lbs.** *Code—Fordab*..... 48.00

PRICE LIST OF DIES FOR THE CHAMPION THREAD-CUTTING MACHINE

Size	Cost	Size	Cost	Size	Cost
3/16	$1.50	1/4	$1.50	5/16	$1.50
3/8	$1.65	7/16	$1.80	1/2	$2.00
9/16	$2.25	5/8	$2.40	11/16	$2.60
3/4	$2.85	13/16	$2.90	7/8	$3.00
15/16	$3.40	1	$3.75		

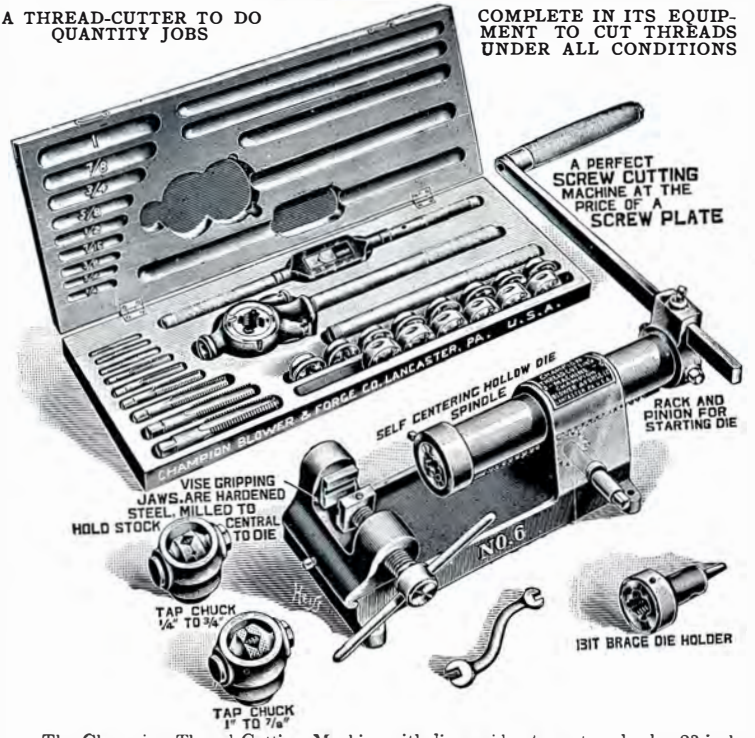
Will furnish Thread-Cutting Machines U. S. Standard Thread. Can supply oversize V, S. A. E. Standard, or Whitworth form of thread when specially ordered.

THE CHAMPION THREAD-CUTTING MACHINE

WITH DIES, GUIDES, TAPS, TAP CHUCKS, RATCHET STOCK, BIT BRACE DIE HOLDER AND TAP WRENCH

A THREAD-CUTTER TO DO QUANTITY JOBS

COMPLETE IN ITS EQUIPMENT TO CUT THREADS UNDER ALL CONDITIONS


A PERFECT SCREW CUTTING MACHINE AT THE PRICE OF A SCREW PLATE
CHAMPION BLOWER & FORGE CO. LANCASTER, PA. U.S.A.
SELF CENTERING HOLLOW DIE SPINDLE
RACK AND PINION FOR STARTING DIE
VISE GRIPPING JAWS ARE HARDENED STEEL, MILLED TO HOLD STOCK CENTRAL TO DIE
NO. 6
TAP CHUCK 1/4" TO 3/4"
TAP CHUCK 1" TO 7/8"
BIT BRACE DIE HOLDER

The Champion Thread-Cutting Machine with dies, guides, taps, tap chucks, 23-inch ratchet stock, bit brace die holder and tap wrench, represents ingenuity in the art of thread cutting and a complete equipment for cutting threads on bars, bolts or nuts by hand or by machine.

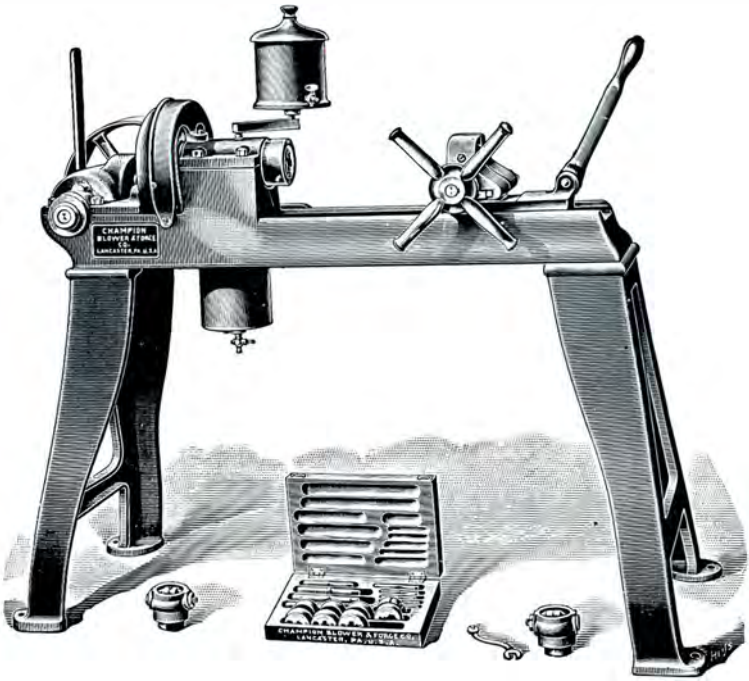
The Champion Ratchet Stock furnished represents a new era in hand screw cutting, that meets every demand under all conditions and often will pay its first cost on one repair job in the saving of disassembling. The Champion Ratchet Stock has all the advantages of a full ratchet stock, with both handles or one handle removed entirely, or changed to a solid non-ratchet stock. It will prove a great time and money saver in any machine or blacksmith shop, and particularly in repair shops and garages. With this equipment is furnished a bit brace die holder, and the necessary guides and tap wrenches, enabling the die attachment to be used by hand.

No. 5 Champion Thread-Cutting Machine with Dies and Taps, Cutting $\frac{1}{4}^{20}$, $\frac{5}{16}^{18}$, $\frac{3}{8}^{16}$, $\frac{7}{16}^{14}$, $\frac{1}{2}^{13}$, $\frac{5}{8}^{11}$ and $\frac{3}{4}^{10}$ Inch, Including Tap Chuck, a 23-Inch Ratchet Stock, 7 Guides, Bit Brace Holder and Tap Wrench Holding $\frac{1}{4}$ to $\frac{3}{4}$ Inch. Weight 90 lbs. *Code—Ferrotypes*. **$54.00**

No. 6 Champion Thread-Cutting Machine with Dies and Taps, Cutting $\frac{1}{4}^{20}$, $\frac{5}{16}^{18}$, $\frac{3}{8}^{16}$, $\frac{7}{16}^{14}$, $\frac{1}{2}^{13}$, $\frac{5}{8}^{11}$, $\frac{3}{4}^{10}$, $\frac{7}{8}^{9}$ and 1^{8} Inch, Including 2 Machine Tap Chucks, a 23-Ratchet Stock, 9 Guides, Bit Brace Holder and Tap Wrench Holding $\frac{1}{4}$ to 1 Inch. Weight 110 lbs. *Code—Fevertrees* **72.00**

Will furnish Thread-Cutting Machines U. S. Standard Thread. Can supply oversize V. S. A. E. Standard, or Whitworth form of thread, when specially ordered.

NO. 500 CHAMPION POWER THREAD-CUTTING AND TAPPING MACHINE, FURNISHED WITH DIES, TAPS AND TAP CHUCKS



This machine is a powerful geared machine for threading or tapping up to one inch. The gears are large, all being cut, lay in a bath of oil, and run silent. There are two speeds, for light and heavy work. The bearings are large and powerful, the Die Head Bearing being 6 inches long, and all bearings are split so wear can be taken up when necessary. The Vise is self-centering type, operated by right- and left-hand screw attached to Star Handle, which operates both jaws at the same time centering all work perfectly with one operation. The Lever to feed work is the ratchet-and-rack type, and the whole vise is moved back or forward instantly, the feed lever being set off center to take long rod or bar work. The lever on head operates the machine right- or left-hand to cut the thread and run off the work, being changed instantly without noise, as one set of gears is engaged to cut the thread and the other to reverse the machine. The Dies furnished are adjustable, being 2 $\frac{3}{16}$ inches in diameter, straight-faced round dies, and the taps are long, two tap chucks being furnished to take all sizes of taps up to 1 inch. Furnished with oil reservoir and tube with cock for automatic oiling.

DIMENSIONS

Length over all.....4 ft. 2 in.
Spread Legs.....20 inches.
Height to Top Bed.....30 inches.
Height over all.....42 inches.
Drive Pulley, 12-in. Diameter 4-in. face.
Speed Pulley should be.....140 R.P.M.
Hole in Spindle 1 $\frac{7}{16}$ inch through.
Diameter head that holds die...3 $\frac{3}{8}$ inches.
Cuts Thread 14 inches long with one gripping of the Vise.

No. 500 Champion Power Thread-Cutting and Tapping Machine, with Dies, Taps and Tap Chucks Complete. Cutting $\frac{1}{4}$20, $\frac{5}{16}$18, $\frac{3}{8}$16, $\frac{7}{16}$14, $\frac{1}{2}$13, $\frac{5}{8}$11, $\frac{3}{4}$10, $\frac{7}{8}$9 and 1 8 Inch U. S. Standard Thread. Weight 300 lbs. *Code—Segar*.....**$150.00**

Unless otherwise ordered we send Taps and Dies U. S. Standard Thread. Can supply with oversize V Thread, S. A. E. Standard or Whitworth Thread when specially ordered.

THE CHAMPION
POWER BLOWERS AND EXHAUST FANS

In presenting the Champion Steel Pressure Blowers, Fan Blowers, Exhaust Fans, and Disc Wheels, we wish to call your attention to their simplicity of construction, beauty of design and effectual manner in which they perform the work required. Yet the form is not only pleasing to the eye, but is also that which secures the greatest possible strength with a given amount of material. They have less parts than any similar machines in the market, and are consequently less liable to get out of order. We offer them to the trade, feeling confident that they will meet their wants in giving the best results with the lowest cost consistent with first-class work and the greatest economy of power and fuel. The journal bearings on all Champion Steel Pressure and Fan Blowers, Exhaust Fans and Disc Wheels, are thoroughly babbitted and carefully reamed to size. The hammered steel shafts, with their long and heavy bearings, are finished with the utmost care and with absolute precision as to size. No higher degree of workmanship and material can be had than is used on these Blowers and Exhausters. The different sizes and designs of our various styles of Blowers, Exhausters and Disc Wheels, are built to meet a very wide range of work; should any further information be desired it is our constant pleasure to furnish same from the office of our mechanical department.

BLAST PIPES

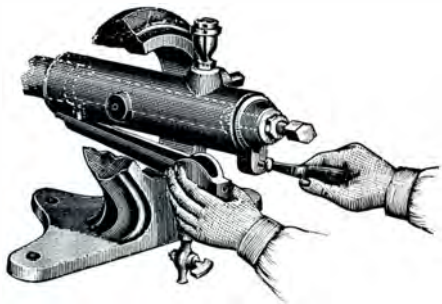
In putting up a Blower for any purpose, parties should at all times endeavor to place the same as near to the work to be done as possible, as the passage of the air is retarded by the friction along the sides of the pipe, and the loss of pressure from this source increases directly as the length of the pipe and as the square of the velocity of the revolving air. Where great lengths of pipe are necessary the sizes or diameter of same should be proportionately increased, as greater velocity and increased power are required to discharge a given amount of air with the same pressure where small pipes are used—the frictional surface being proportionately greater in small pipes than in large; hence great care should be taken to have the diameter in proportion to the length. All right angles or abrupt turns in Blast Pipes should be avoided, as they greatly diminish their capacity. Easy curves should be introduced in making turns.

THE CHAMPION
STEEL PRESSURE BLOWER BLAST WHEEL

The Champion Steel Pressure Blower Blast Wheel with its accompanying shaft and pulleys are a construction of skilled mechanics of the highest degree. The steel plate used is especially rolled and galvanized for the Champion Blast Wheels. The spiders are made from a new patent composition known to be tougher, stiffer, and stronger than any other metal used for the purpose heretofore. The shaft is made from the highest grade of hammered cast steel. The originality in the shape of the Champion Blast Wheel has placed us in a position, after years of experimenting, to be able to manufacture a Blast Wheel which will produce the largest amount of air with the greatest amount of pressure, with less power than any other for running same. The balancing of the Champion Blast Wheel is done on a special made machine not known outside of our works; therefore, we are able to furnish every Blast Wheel balanced to the highest nicety of accuracy, positively taking all vibration from the Blower. Every Blower being run and thoroughly tested with at least one-third higher speed than required in actual use before leaving our works. All Fan Blowers and Exhaust Fan Blast Wheels are built the same as the Steel Pressure only different in design.

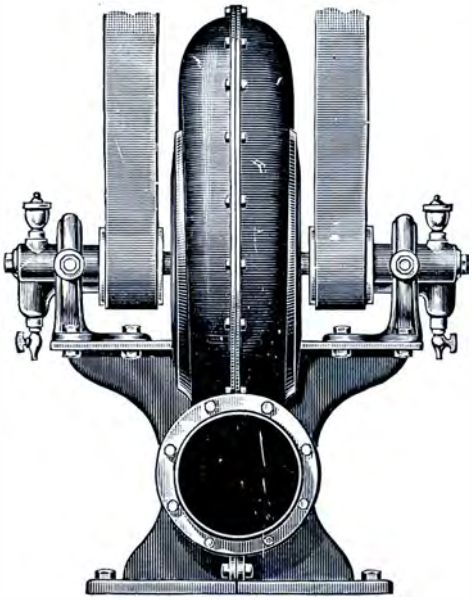
THE CHAMPION
POWER BLOWER JOURNAL BEARING

The Champion Journal Bearing used on all our Power Blowers has proven itself a practical bearing for Power Blowers. It has a universal adjustment, whereby it comes readily into perfect line with the shaft. The journal bearings being in one solid piece are easily removed without taking the blower apart. By referring to the illustrations of the journal bearing it will be seen the back lash or end motion of the shaft is taken up by a steel set screw, held by a jam nut at each end of the shaft, there being a fiber washer placed between the ends of the shaft and the set screws, giving the advantage of adjusting and taking up the slightest back lash that may come after years of running, which can be done without the employment of a mechanic. A very valuable feature connected with this journal bearing is the Movable Drip Chamber, which is readily removed and cleaned, giving the refuse oil a clean way to the drip cock at all times. Experience has taught us that when solid journal bearing and catch chambers are combined as one solid casting with an internal recess for the passage of the refuse oil, it will clog and gum up in a short time; consequently will only act as an imitation and the refuse oil and dirt will be forced out on the pulley and belt. Our Movable Oil Chamber can be taken off and replaced while the Blower is in motion. The Solid or One Piece Journal Bearing, as used on all Champion Power Blowers, is indispensable, as the high speed necessary to run a power blower is bound to jar loose all split bearings. Split bearings cannot be kept tight enough to prevent oil from coming out on the belts and pulleys.



THE CHAMPION STEEL PRESSURE BLOWER

FOR CUPOLA FORGES AND FURNACES



Nos. 1 to 3 Champion Steel Pressure Blowers are made with one pulley. Nos. 4 to 10 are made with two pulleys as shown in above illustration. Refer to pages 228 and 229 and examine the Champion Blast Wheel and Champion Power Blower Journal Bearings used on this Blower. The Champion Steel Pressure Blower contains less parts than any other, and is warranted to give entire satisfaction for supplying blast for cupolas, furnaces, forge fires, sand blast machines, and for any work requiring forcing of air long distances, high pressure, or strong blast. All Champion Steel Pressure Blowers are furnished in the regular discharge, *i.e.*, bottom horizontal right hand, unless otherwise specified in order, when left hand can be had at same price. An extra 10 per cent. will be charged for other discharges, illustrations of which will be found on page 232.

THE CHAMPION STEEL PRESSURE BLOWER

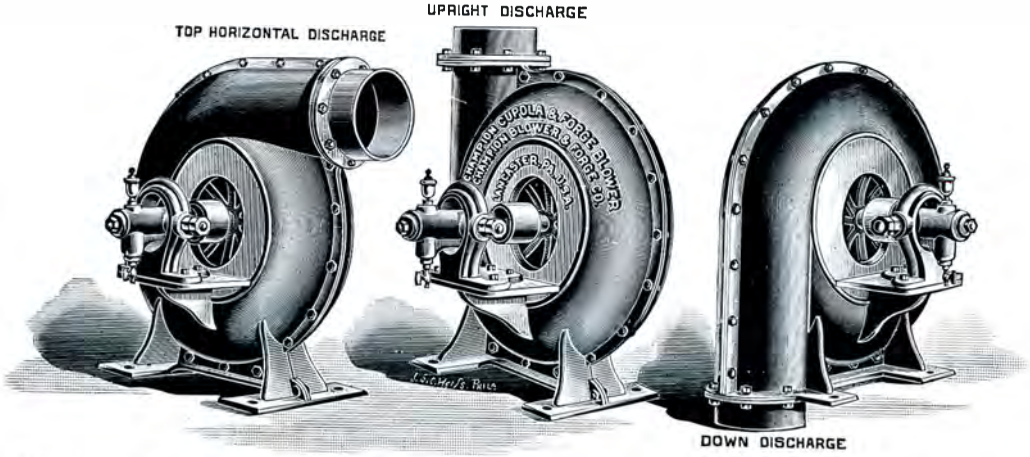
FOR CUPOLA FORGES AND FURNACES

The Champion Steel Pressure Blower is especially adapted for Foundry Cupolas, Furnaces, Machine Shops, Forge Fires, Sand Blast Machines, or any work requiring forcing of air long distances, high pressure or strong blast. Will produce a stronger Blast with same amount of power than any other Blower.

Height in Inches.	No. of Blower.	Price without Counter-shaft.	Weight Each, Pounds.	Diameter of Pulley in inches.	Face of Pulley in inches.	Outside Diameter of Outlet.	Diam. in Ins. Inside Cupola	Melting capacity per Hour in lbs.	Speed No. of Rev. for Melting Iron.	Pressure of Blast, Ounces	No. of Forge Fires.	Rev. per Minute for Forge Fires.	Code.
12	½	$16.00	25	1⅞	1¾	2⅜	..	.....	.....	..	1	4,300	*Filatory*
15	1	24.00	50	2½	2	3 1/16	..	.....	.....	..	2	4,200	*Filature*
20	2	35.00	110	3	2½	4 3/16	..	.....	.....	..	4	4,000	*Filbert*
24	3	48.00	165	3⅝	2½	5	22	1,300	4,150	5	6	3,725	*Filch*
26	4	59.00	220	3⅞	2⅝	6	26	2,000	3,790	6	9	3,103	*File*
30	5	74.00	320	4½	3¼	6¾	30	2,900	3,275	7	15	2,456	*Filial*
35	6	94.00	440	4⅞	3½	8	35	4,000	3,050	8	18	2,224	*Filiation*
40	7	120.00	575	6	3¾	9¼	40	6,000	2,900	10	4	1,814	*Filings*
45	8	154.00	775	7	4½	11	46	8,600	2,820	12	30	1,619	*Fillet*
53	9	214.00	1,000	7¾	5	12½	53	12,300	2,600	14	40	1,344	*Fillip*
64	10	300.00	1,925	9	6½	14	60	16,500	2,270	15	52	1,200	*Finger*

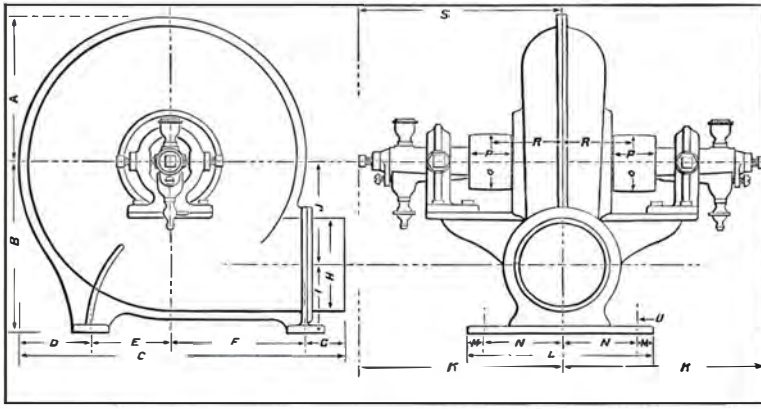
THE CHAMPION STEEL PRESSURE BLOWER

IN DIFFERENT DISCHARGES



The above illustrations show the different discharges of the Champion Steel Pressure Blower, which can be had if specially ordered, for which an additional 10% will be charged. **Always** be sure to say, when ordering special discharge, if Blower or Exhauster is to be bolted **to the ceiling or to the floor.**

DIMENSIONS OF
THE CHAMPION STEEL PRESSURE BLOWERS



Dimensions in Inches.

No.	A	B	C	D	E	F	G	H	I
1/2	5 7/8	6 7/8	12 1/2	3	2 3/16	5 1/2	1 3/4	2 3/4	2 3/4
1	6 1/16	8 1/16	14 1/4	3 1/16	3 1/8	5 5/8	1 3/4	3 1/2	3 1/2
2	8 1/16	11 1/16	19 1/2	3 1/8	5 1/2	7 7/8	2 3/8	4 5/8	4 5/8
3	10 3/8	13 5/8	23 3/4	6 1/2	6	10 1/2	2 5/8	5	4 9/16
4	11	15	25 3/4	7	6 1/2	10 3/4	2 1/2	6	5
5	13 3/8	16 5/8	28 3/4	7 1/2	8 1/16	11 3/4	3 1/8	6 3/4	5 3/4
6	15 3/8	19 1/4	33 7/8	8	8 3/8	13 3/4	3 3/4	8	6 7/8
7	17 1/4	22 1/4	38 3/4	8 1/4	10 1/4	16 1/4	4	9 1/4	8
8	19 1/2	25	44	9 3/4	11 3/4	18 1/8	4 1/8	11	8 3/4
9	22 3/4	29	50	10 3/4	14	21 1/8	4 1/8	12 1/2	10 1/8
10	27 1/2	42	62	16	17 1/4	25 1/4	4 1/8	14	12

No.	J	K	L	M	N	O	P	R	U
1/2	4 1/8	6 1/2	5 3/8	9/16	2 1/8	1 7/8	1 3/8	2 3/8	3/8
1	5 3/16	9	9 1/4	3/4	3 7/8	2 1/2	2	2 7/8	3/8
2	7 1/16	10 1/4	11	3/4	4 3/4	3	2 1/8	3 5/8	3/8
3	9 1/16	11 3/4	12 7/8	1 3/8	5 1/16	3 3/8	2 1/2	4	1/2
4	10	12 1/4	14	1 1/8	5 1/8	3 7/8	2 3/4	4 7/8	1/2
5	10 7/8	14 1/2	16	1 1/2	6 3/4	4 1/2	3 1/4	5 3/4	5/8
6	12 3/8	15 3/4	19 1/2	2	7 3/4	4 7/8	3 1/2	6 1/4	5/8
7	14 1/4	17 1/4	20	2	8 1/8	6	3 3/4	7	13/16
8	16 1/4	21	22 1/2	2	9 1/2	7	4 1/2	9 1/2	13/16
9	18 7/8	22	26	2	11	7 3/4	5 1/2	9 1/2	7/8
10	25 5/8	24 3/4	30 7/8	4	11	9	6 1/4	11 1/2	7/8

TABLE OF SPEEDS, PRESSURE IN OUNCES, CAPACITY IN CUBIC FEET OF AIR PER MINUTE AND POWER REQUIRED OF THE CHAMPION STEEL PRESSURE BLOWERS

No. of Blower.	No. of Forge Fires Each Blower will Supply.	4-ounce. Revolutions per Minute.	4-ounce. Cubic Feet of Air per Minute.	4-ounce. Horse Power Required.	5-ounce. Revolutions per Minute.	5-ounce. Cubic Feet of Air per Minute.	5-ounce. Horse Power Required.	6-ounce. Revolutions per Minute.	6-ounce. Cubic Feet of Air per Minute.	6-ounce. Horse Power Required.	7-ounce. Revolutions per Minute.	7-ounce. Cubic Feet of Air per Minute.	7-ounce. Horse Power Required.	8-ounce. Revolutions per Minute.	8-ounce. Cubic Feet of Air per Minute.	8-ounce. Horse Power Required.	9-ounce. Revolutions per Minute.	9-ounce. Cubic Feet of Air per Minute.	9-ounce. Horse Power Required.	10-ounce. Revolutions per Minute.	10-ounce. Cubic Feet of Air per Minute.	10-ounce. Horse Power Required.	11-ounce. Revolutions per Minute.	11-ounce. Cubic Feet of Air per Minute.	11-ounce. Horse Power Required.	12-ounce. Revolutions per Minute.	12-ounce. Cubic Feet of Air per Minute.	12-ounce. Horse Power Required.
3	6	3725	360	1.	4135	405	1.4	4508	445	1.8	4850	480	2.3	5195	515	2.9	5540	550	3.4	5864	580	4.2	6190	610	4.6	6494	635	5.2
4	9	3103	504	1.4	3445	567	2.	3756	623	2.6	4042	672	3.2	4330	721	4.	4615	770	4.8	4886	812	5.6	5156	854	6.4	5411	889	7.2
5	15	2456	720	2.	2753	810	2.8	3006	890	3.6	3253	960	4.6	3487	1030	5.6	3728	1100	6.6	3950	1160	7.8	4175	1220	9.2	4382	1270	10.4
6	18	2224	1008	2.8	2470	1134	3.8	2692	1246	5.	2897	1344	6.4	3102	1442	7.8	3307	1540	9.2	3502	1624	11.	3695	1708	12.8	3878	1778	14.6
7	24	1814	1440	4.	2026	1620	5.6	2215	1780	7.2	2387	1920	9.2	2563	2060	10.	2733	2200	11.	2900	2320	15.	3055	2440	18.	3213	2540	20.8
8	30	1619	1872	5.2	1797	2106	7.2	1960	2314	9.4	2009	2496	12.	2258	2678	14.	2408	2860	15.	2550	3016	20.	2676	3172	23.	2823	3302	27.
9	40	1344	2592	7.2	1507	2916	10.	1641	3204	12.	1768	3456	15.	1893	3708	17.	2024	3960	21.	2146	4176	26.	2263	4392	30.	2383	4572	35.
10	52	1000	3312	9.	1330	3726	12,8	1445	4094	15.	1565	4416	18.	1675	4738	20.	1785	5060	25.	1893	5336	30.	2000	5612	35.	2100	5842	40.
Pressure		4-ounce.			5-ounce.			6-ounce.			7-ounce.			8-ounce.			9-ounce.			10-ounce.			11-ounce.			12-ounce.		

TABLE FOR EQUALIZING THE DIAMETER OF PIPES

Parties putting up blast pipes are very liable to think that because the combined area of four 6-inch pipes is the same as one 12-inch pipe, that the four pipes will convey the same quantity of air with the same ease and freedom that the 12-inch will, whereas it actually does take 5.7 —almost six 6-inch pipes. Again, sixteen 3-inch pipes have the combined area of one 12-inch pipe, but in actual practice it takes just thirty-two 3-inch pipes to do the work of one 12-inch. This is due to the excess of friction for every cubic foot of air in the small pipes over that in the large.

The dark figures with star, at top of each column give the diameters in inches of the branch-pipes. The figures at the intersection of the horizontal line with the vertical give the number of pipes, of the diameter given at the top of the column that will be equal in capacity for conveying air to one given opposite in first column.

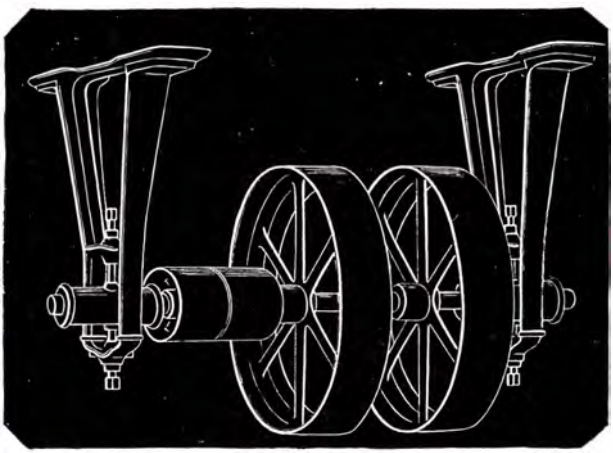
Every ordinary forge fire requires a pipe 3 inches in diameter running into the tuyere iron. To determine the size of the blower and the main pipe required, for instance, for 5 forge fires, take the dark figure 3 with star, follow down between the lines to 5.7, then follow in line to the left to the dark figure marked x which gives the size of outlet of the blower; also diameter of the main pipe. After finding size of outlet of blower required to run 5 forge fires. The to table and price list of either steel pressure blowers or fan blowers which gives the size or number of blower required is a consideration figures given are all made on the basis of an average forge fire, the size of fire and the distance in which the air must be conveyed to be reduced from 15 to 25 of great importance. When the blower is very close to the fire, and the fires are small, of course the size of the blower can be reduced from 15 to 25 per cent. It is always best to correspond with us and state conditions, when we will be glad to name the size blower that we think best for the work.

P. S.—This table is equally applicable for planing mill, exhaust fans and suction fans for all purposes, the only difference being that in exhaust or suction fans the size of inlet is taken while on blowers the size of outlet is taken.

Diameter of Main Blast Pipe in Inches.	3*	4*	5*	6*	7*	8*	9*	10*	11*	12*	13*	14*	15*	16*	17*	18*	19*	20*	22*	24*	26*	28*	30*	36*
1x	1*																							
2x	5.7	2*																						
3x	16	2.7	3*																					
4x	32	5.7	2.0	4*																				
5x	56	9.8	3.6	1.8	5*																			
6x	88	16	5.7	2.8	1.6	6*																		
7x	129	23	8.3	4.1	2.3	1.5	7*																	
8x	180	32	12	5.7	3.2	2.1	1.4	8*																
9x	244	42	16	7.6	4.3	2.8	1.9	1.3	9*															
10x	317	56	20	9.9	5.7	3.6	2.4	1.7	1.3	10*														
11x	402	71	26	12	7.0	4.5	3.1	2.2	1.7	1.3	11*													
12x	501	88	32	16	9.0	5.7	3.8	2.8	2.0	1.6	1.2	12*												
13x	613	107	39	19	11	6.9	4.7	3.4	2.5	1.9	1.5	1.2	13*											
14x	737	129	47	23	13	8.3	5.7	4.1	3.0	2.3	1.8	1.5	1.2	14*										
15x	876	152	56	27	16	9.9	6.7	4.8	3.6	2.8	2.2	1.8	1.4	1.2	15*									
16x	1026	180	65	32	18	11	7.9	5.7	4.2	3.2	2.6	2.1	1.7	1.4	1.2	16*								
17x	1197	208	76	37	21	13	9.2	6.6	4.9	3.8	2.9	2.4	2.0	1.6	1.4	1.2	17*							
18x	1375	239	88	43	24	16	10	7.7	5.7	4.3	3.4	2.8	2.3	1.9	1.6	1.3	1.2	18*						
19x	1580	275	100	49	28	18	12	8.8	6.5	4.5	3.9	3.2	2.6	2.2	1.8	1.5	1.3	1.2	19*					
20x	1797	313	114	56	32	20	14	9.9	7.4	5.7	4.5	3.6	2.9	2.5	2.1	1.7	1.5	1.3	1.1	20*				
22x	2284	398	145	71	41	26	18	13	9.3	7.2	5.7	4.5	3.7	3.1	2.6	2.2	1.9	1.7	1.4	1.3	22*			
24x	2834	493	180	88	50	32	22	16	12	8.9	7.6	5.7	4.6	8.8	3.2	2.9	2.4	2.1	1.8	1.6	1.2	24*		
26x	3474	605	219	108	62	39	27	19	14	11	8.6	6.9	5.7	4.7	4.0	3.4	2.9	2.5	2.2	1.9	1.5	1.2	26*	
28x	4165	725	265	129	74	48	32	23	17	13	10	8.3	6.8	5.7	4.8	4.1	3.5	3.0	2.6	2.3	1.8	1.5	1.2	28*
30x	4963	864	315	154	88	56	38	28	20	16	12	9.9	8.0	6.7	5.7	4.7	4.1	3.6	3.0	2.6	2.2	1.7	1.4	1.2	30*
36x	7813	1361	497	243	139	88	60	43	32	25	19	16	13	11	8.9	7.6	6.5	5.7	5.0	4.3	3.4	2.7	2.2	1.9	1.6	36*

THE CHAMPION COUNTERSHAFT

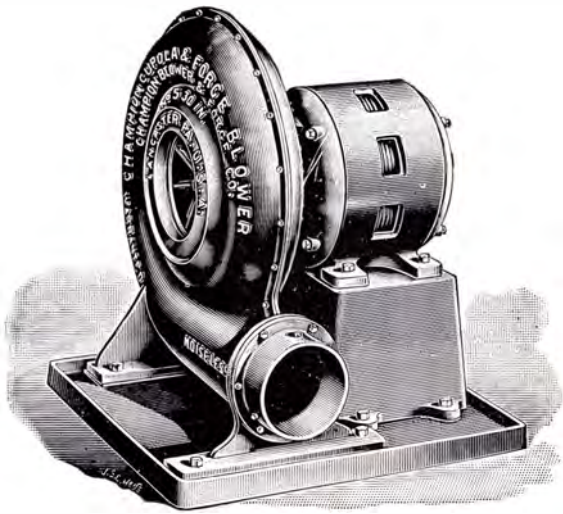
FOR STEEL PRESSURE BLOWERS



When ordering the Steel Pressure Blower with Countershaft and Pulleys you should always give speed of main line shafting and the largest pulley that can be used thereon. It is desirable to get all the speed possible from the main line shaft; also always use as large a pulley as possible on the Countershaft, for main belt. Steel Pressure Blowers from Nos. 1 to 3 have but one pulley, and Nos. 4 to 10 have two pulleys, all other Blowers and Exhausters have but one pulley.

Size of Blower.	Diameter of Driving Pulley in Inches.	Diameter of Pulley for Main Belt in Inches.	Diameter of Shaft.	Code.	Price with Two Driving Pulleys, etc.	Price with One Driving Pulley.	Code.
½	12	4	¾			$16.00	*Findebant*
1	14	5	1			19.00	*Flabile*
2	16	6	1¼			23.00	*Flaccid*
3	18	7	1¼			29.50	*Flag*
4	21	8	1½	*Flabamus*	$ 44.00		
5	26	9	1¾	*Flabant*	53.00		
6	30	10	1¾	*Flabellate*	58.00		
7	32	12	1 15/16	*Flabilibus*	72.00		
8	36	14	2¼	*Flabilium*	93.50		
9	40	16	2½	*Flabitis*	122.00		
10	44	18	2 15/16	*Flabrate*	141.50		

THE CHAMPION ELECTRIC DRIVEN STEEL PRESSURE BLOWERS

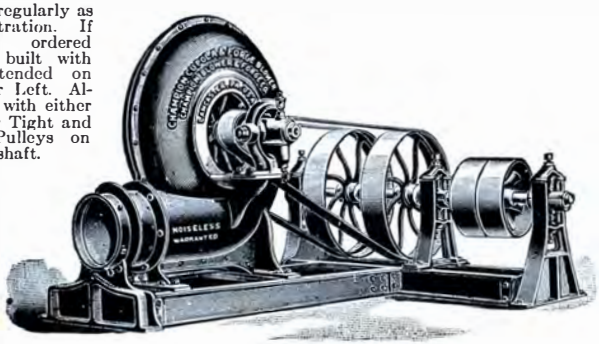


The Champion Electric Driven Steel Pressure Blowers are all equipped with the most modern type and design of Motor—guaranteed in all cases to produce the best results wherever applied. The Motor and Blower are both placed on the same base—holding them firmly in place. The Blast Wheel is attached direct to the Motor Shaft. The Motor is of semi-enclosed type and guaranteed to do the work under continuous service with ordinary care.

No.	Speed.	Horse Power.	Pressure.	Capacity.	110 or 220V D.C.	60 Cycle Single Ph.	60 Cycle 2 or 3 Ph.
3	1,750	½	1½ oz.	200 cu. ft.	$ 160.00	$160.00	$ 160.00
3	3,500	5	4 "	360 " "	400.00	.....	350.00
4	1,750	1	2 "	325 " "	270.00	240.00	240.00
4	3,500	10	5 "	575 " "	.....	.....	700.00
5	1,750	2	3 "	600 " "	320.00	350.00	290.00
5	3,500	15	8 "	1,030 " "	.....	.....	800.00
6	1,150	1½	2 "	450 " "	350.00	370.00	290.00
6	1,750	3	3½ "	750 " "	385.00	385.00	300.00
7	1,150	3	3 "	850 " "	425.00	425.00	330.00
7	1,750	7½	4 "	1,400 " "	.....	.....	585.00
8	850	5	2 "	900 " "	730.00	.....	730.00
8	1,160	7½	3 "	1,600 " "	750.00	.....	750.00
8	1,750	25	5 "	2,100 " "	.....	.....	1300.00
9	850	7½	2½ "	1,850 " "	800.00	.....	800.00
9	1,150	15	4 "	2,400 " "	1120.00	.....	935.00
10	850	15	4 "	2,700 " "	1210.00	.....	1150.00
10	1,150	35	5 "	3,500 " "	.....	.....	1700.00

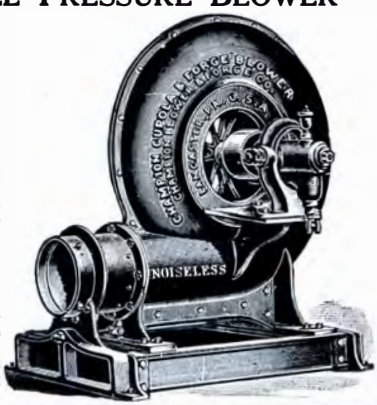
THE CHAMPION STEEL PRESSURE BLOWER ON ADJUSTABLE BED
COMBINED WITH COUNTERSHAFT

Built regularly as per illustration. If specially ordered will be built with arm extended on Right or Left. Also built with either Tight or Tight and Loose Pulleys on Countershaft.



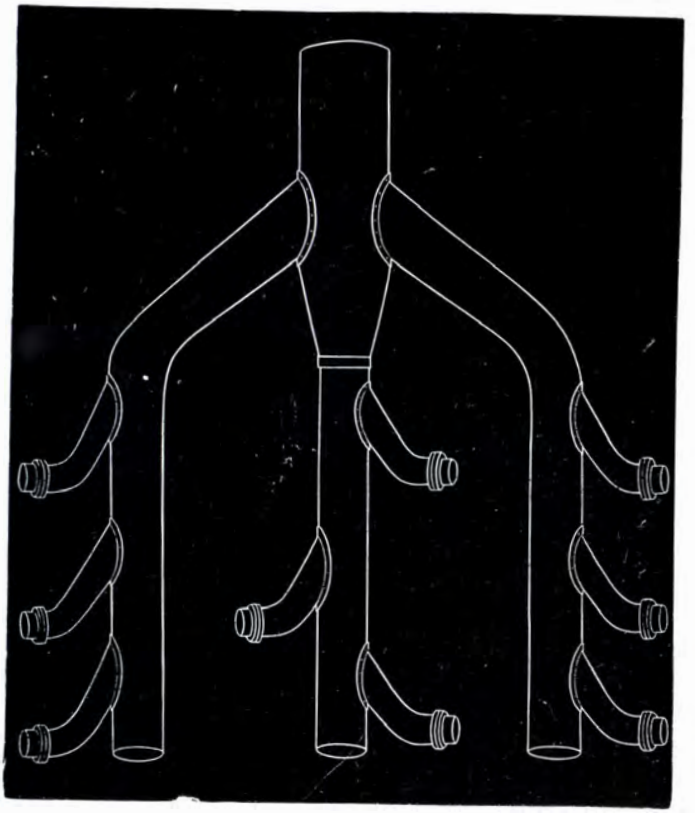
THE CHAMPION STEEL PRESSURE BLOWER ON ADJUSTABLE BED

The cut represents the Champion Steel Pressure Blower on an adjustable bed. The cut of adjustable bed with countershaft combined will be found above. Nos. 6 to 10 inclusive are the only sizes regularly furnished with adjustable bed or with adjustable bed and countershaft combined. Only bottom horizontal discharge blowers are fitted up in this style. Tight and loose pulleys are furnished at a nominal additional price in place of the usual single countershaft pulley driven by main belt. The foundation is constructed of steel beams, to which the blower may be readily bolted and upon which it is adjustable by means of the shackle-bolt. The shaft of the blower is thus kept in perfect alignment with the countershaft, the belts track evenly, run smoothly, and wear well. Any required tension may be brought upon the belts while running, thus preventing inconvenience and loss incident to stoppage.



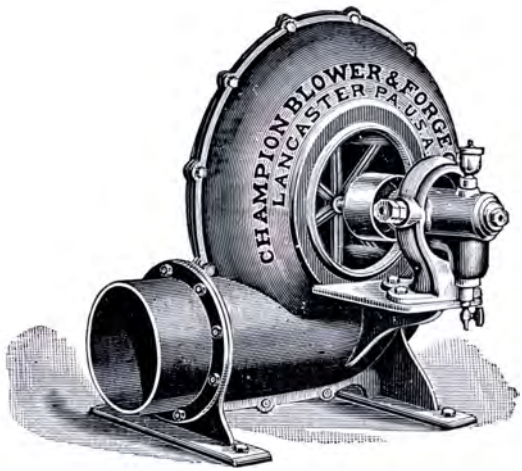
No. of Blower.	Outside Diam. of Outlet in Inches.	Diameter of Pulley Driving Blower.	Diam. of Pulley driven by Main Belt from Line Shaft.	Pulleys. Diameter in Inches.	Pulleys. Face in Inches.	Code.	Price with Bed without Countershaft.	Price with Bed and Countershaft.	Code.
6	8	30	10	4 1/2	3 1/2	*Flachshaar*	$120.00	$230.00	*Flachgang*
7	9 1/2	32	12	6	3 3/4	*Flachsicht*	152.00	300.00	*Flachhuf*
8	11	36	14	7	4 1/2	*Flachsohle*	200.00	380.00	*Flachland*
9	12 1/2	40	16	7 3/4	5 1/2	*Flachwurf*	312.00	552.00	*Flachnase*
10	14	44	18	9	6 1/8	*Flacourtie*	396.00	680.00	*Flachsban*

BRANCHES AND ELBOWS OF BLAST PIPES



The above outlined cut of Piping and Elbows gives a general idea of the manner of application of Pipes for Blast or Exhaust. Where large numbers of connections are required avoid all square or short turns. All connections must be made in the direction of the movement of the air or towards the Fan whether for Blast or Exhaust. The main suction pipe should never be tapered until the branch pipes to the machines have reduced the power of suction to a smaller area. An ordinary suction pipe will not require tapering oftener than once in 15 to 20 feet. Avoid taking out of main suction pipe two branches directly opposite. Connect the branches to the main pipe either at the side or above the center line of the main pipe.

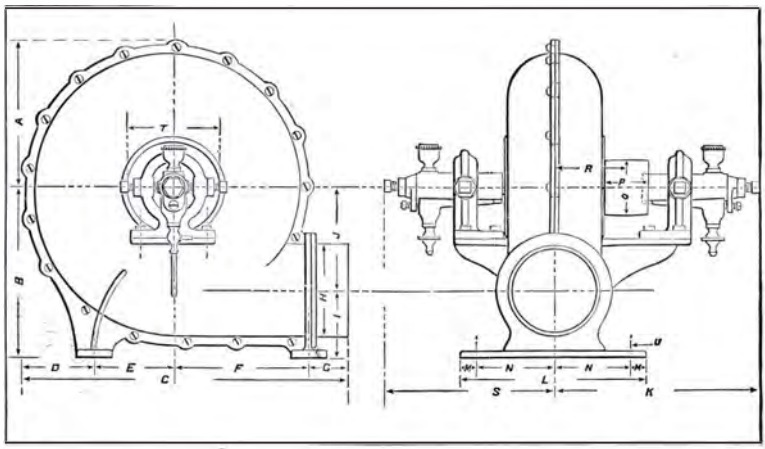
THE CHAMPION FAN BLOWER



The Champion Fan Blowers are built especially for use where a large volume of blast is required (instead of great pressure). They are adapted for steam boilers, puddling and heating furnaces, dry rooms, refrigerators, forge fires, etc.; also for ventilation. They are constructed in the best possible manner, with only the highest grade material and workmanship. The journal bearings and blast wheels used on these Blowers are our Standard. The number of forge fires given in table can only be considered as a guide to go by, as all depends on the size of fires wanted, and in what location the Blower is placed. The best results are obtained when Blower is close to the fires, and elbows, especially short turns, are avoided.

No. of Blower.	Price	Weight Each, Pounds.	Height in inches.	Diameter of Inlet.	Outside Diameter of Outlet.	Diameter of Pulley.	Face of Pulley.	Revs. per min. 2-ounce Blast for Boiler Fires.	Revs. per min. 4-ounce Blast for Forge Fires.	No. of Forge Fires.	Sq. ft. of Boiler, Grate Surface Supplied by Blower.	Code.
½	$16.00	30	12	4½	3¾	2 9/16	1¾	3,300	4,500	1	4	*Findest*
1	20.00	55	15	5	4½	3	2	3,000	4,000	2	6	*Finical*
2	26.50	75	18	5¾	5	3	2½	2,600	3,600	4	9	*Finis*
3	33.00	125	21½	6½	6	3½	2⅝	2,300	3,200	6	15	*Finish*
4	44.00	190	25½	7½	8	4¼	3½	1,928	2,682	9	24	*Finisher*
5	58.50	260	29¾	9	9¼	5⅛	4	1,638	2,279	15	34	*Finite*
6	73.00	380	34	10½	11	6	4¾	1,410	1,961	18	50	*Finned*
7	93.00	525	40	12	12½	6¾	5¼	1,194	1,662	24	72	*Finniken*
8	120.00	900	45	14	14⅝	8	6½	1,018	1,417	30	82	*Finny*
9	200.00	1,100	50	16	16¾	9	8	878	1,234	40	115	*Fintoed*
10	266.00	1,470	57	18	18½	10	9¼	766	1,065	52	195	*Fir*

DIMENSIONS OF
THE CHAMPION FAN BLOWERS



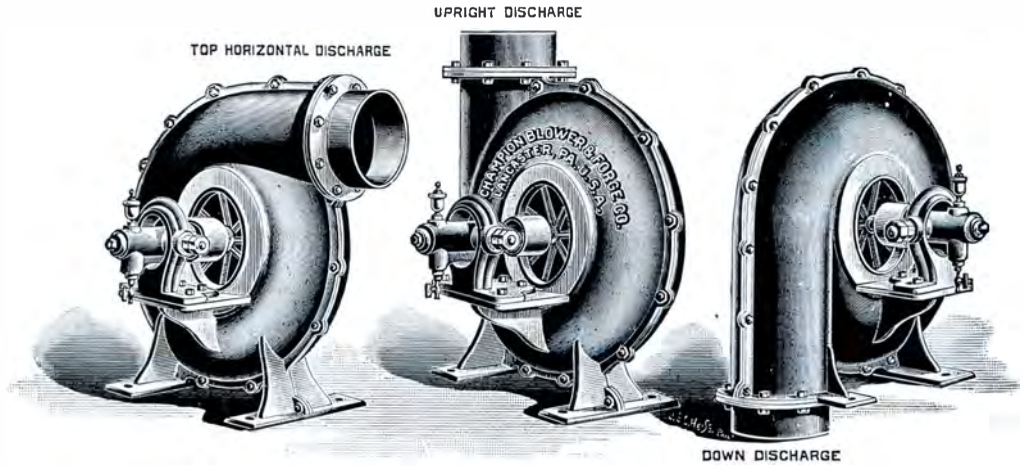
Dimensions in Inches.

No.	A	B	C	D	E	F	G	H	I
1/2	5 5/8	6 1/4	13 1/4	2 3/4	3 1/8	5 3/8	1 3/4	3 3/4	2 7/8
1	6 3/4	7 7/8	15 1/2	3 5/8	3 5/8	6	2 1/4	4 1/2	3 1/4
2	8	9 3/4	18 1/4	4	4 3/8	7 3/8	2 1/2	5	4 1/8
3	9 1/4	11 1/4	21 1/4	5	5	8 1/2	2 3/4	6	4 1/2
4	10 7/8	14 1/4	24 1/4	6	5 3/4	9 3/4	2 3/4	8	5 3/4
5	12 3/4	16 1/4	27 1/2	6 3/4	6 5/8	10 7/8	3	9 1/4	6 3/4
6	15 1/4	18 1/2	31	7 3/4	7 3/4	12 1/2	3	11	7 1/2
7	17	22 5/16	36	9 1/8	9	14 7/8	3 1/2	12 1/2	9 1/4
8	19 5/8	24 7/8	42	10 1/4	10 3/4	17 1/8	3 1/2	14 5/8	10 1/4
9	23	27 1/2	46 1/2	12 1/4	11 3/4	19	3 1/2	16 3/4	11 1/4
10	25 1/4	32	53	14 1/2	13 1/2	21 1/2	3 1/2	18 1/2	13 1/4

No.	J	K	L	M	N	O	P	R	S	U
1/2	3 3/8	7	8	5/8	2 3/16	2 9/16	1 3/4	3	5 5/8	9/16
1	4 5/8	9 3/4	8 1/2	3/4	3 1/16	3	2	3 1/2	8 1/8	3/4
2	5 5/8	11	10	7/8	4 1/8	3	2 1/2	4 1/2	8 3/8	3/4
3	7	12 5/8	12	1 1/8	4 7/8	3 1/2	2 3/4	4 5/8	10 1/8	1 1/16
4	8 1/2	14 3/4	14	1 1/8	5 7/8	4 1/4	3 1/2	6 1/2	10 5/8	1 1/16
5	9 1/2	16 3/4	16 3/4	1 1/4	7 1/16	5 1/8	4	7 1/4	13	1 5/16
6	10 1/2	19 1/8	19 5/8	1 7/16	8 1/2	6	4 1/2	9 1/8	14 5/8	1 5/16
7	12 9/16	21 1/2	22	1 1/2	9 1/2	6 3/4	5 1/4	12	17	1 7/16
8	14 5/8	24 1/2	27 1/4	1 7/8	11 3/8	8	6 1/2	12 3/8	18	1 15/16
9	16 1/4	26 1/4	28	2 1/2	11 1/2	9	8	13 1/2	20	1 7/8
10	18 3/4	38	32 1/2	3	13 1/4	10	9 1/4	14 1/4	29 1/4	1 7/8

THE CHAMPION FAN BLOWER

IN DIFFERENT DISCHARGES



The above illustrations show the different discharges of the Champion Fan Blower, which can be had if specially ordered, for which an additional 10% will be charged. **Always** be sure to say, when ordering special discharge, if Blower or Exhauster is to be bolted **to the ceiling,** or **to the floor.**

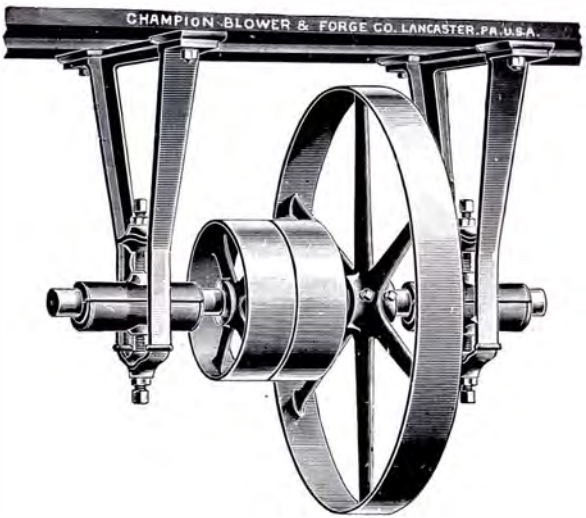
TABLE OF SPEED

Pressure in Ounces, Capacity in Cubic Feet per Minute, and Power Required to Run the Champion Fan Blower and Exhaust Fan for Boilers, Heating Furnaces and Ventilation

No. of Blower	Square Inches of Blast	½-ounce. Revolutions per Minute	½-ounce. Cubic Feet of Air per Minute	½-ounce. Horse Power Required	1-ounce. Revolutions per Minute	1-ounce. Cubic Feet of Air per Minute	1-ounce. Horse Power Required	1½-ounce. Revolutions per Minute	1½-ounce. Cubic Feet of Air per Minute	1½-ounce. Horse Power Required	2-ounce. Revolutions per Minute	2-ounce. Cubic Feet of Air per Minute	2-ounce. Horse Power Required	2½-ounce. Revolutions per Minute	2½-ounce. Cubic Feet of Air per Minute	2½-ounce. Horse Power Required	3-ounce. Revolutions per Minute	3-ounce. Cubic Feet of Air per Minute	3-ounce. Horse Power Required	3½-ounce. Revolutions per Minute	3½-ounce. Cubic Feet of Air per Minute	3½-ounce. Horse Power Required	4-ounce. Revolutions per Minute	4-ounce. Cubic Feet of Air per Minute	4-ounce. Horse Power Required	4½-ounce. Revolutions per Minute	4½-ounce. Cubic Feet of Air per Minute	4½-ounce. Horse Power Required	5-ounce. Revolutions per Minute	5-ounce. Cubic Feet of Air per Minute	5-ounce. Horse Power Required
0	9	1652	140	1	2310	200	15	2951	380	25	3090	400	.5	3590	490	.8	3790	500	.9	4290	590	1	4400	625	1.3	4700	700	1.5	4900	750	1.9
1	12	1487	200	.15	2087	265	.25	2495	420	.35	2885	470	.7	3270	520	.9	3400	560	1	3870	680	1.2	4000	700	1.5	4300	790	1.7	4500	820	2.1
2	17	1323	279	.2	1863	395	.3	2274	485	.5	2613	561	.8	2912	626	1	3177	688	1.2	3417	744	1.4	3637	798	1.7	3843	845	2	4037	892	2.5
3	25	1159	380	4	1632	539	.5	1992	661	.9	2291	764	1	2550	853	1.2	2782	938	1.5	2992	1014	1.8	3184	1086	2	3365	1153	2.2	3552	1216	2.6
4	42	976	508	.5	1373	719	.7	1677	882	1	1928	1019	1.2	2147	1138	1.6	2343	1251	1.7	2520	1353	2	2682	1447	2.5	2833	1537	3.5	2974	1622	4.5
5	61	829	710	.6	1167	1006	.8	1425	1235	1.2	1638	1427	1.5	1824	1593	2	1900	1751	2.5	2140	1894	3.5	2279	2026	4	2455	2158	5	2527	2270	6.2
6	82	714	967	1	1050	1365	1.4	1227	1675	2	1410	1936	3	1570	2162	3.6	1713	2377	3.8	1842	2570	5.5	1961	2730	7.5	2072	2920	7.2	2176	3081	10
7	103	604	1346	1.1	852	1904	1.6	1038	2337	2.5	1194	2701	3.5	1330	3016	3.9	1450	3315	4.3	1560	3584	7.6	1662	3836	8.3	1755	4073	9	1843	4297	10.5
8	153	519	1829	1.5	726	2587	2.2	886	3174	3.7	1018	3669	39	1134	4100	6.3	1237	4502	7.9	1331	4868	8.9	1417	5211	10.5	1496	5532	12.8	1571	5838	15
9	201	449	2413	2	632	3413	3.1	772	4186	4.2	876	4847	57	988	5405	7	1078	5941	8.8	1159	6425	10	1234	6875	14	1303	7300	16.8	1368	7703	20
10	254	387	3048	2.5	545	4311	3.7	665	5291	4.7	766	6115	6	852	6828	7.9	930	7505	9.2	1000	8116	11.2	1065	8684	15.6	1124	9221	20	1180	9730	25
Pressure		½-ounce.			1-ounce.			1½-ounce.			2-ounce.			2½-ounce.			3-ounce.			3½-ounce.			4-ounce.			4½-ounce.			5-ounce.		

THE CHAMPION COUNTERSHAFT

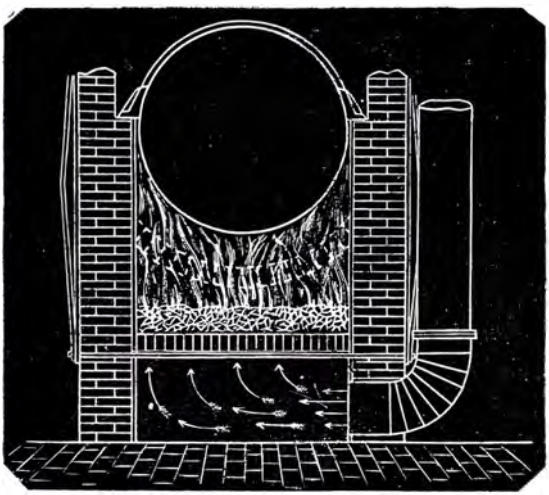
For Fan Blowers and Exhaust Fans



When ordering Champion Fan Blowers also Exhaust Fans with Countershaft and Pulleys you should always be particular to give speed of main line shafting and the largest pulley that can be used thereon. It is desirable to get all the speed possible from the main line shaft; also always use as large a pulley as possible on the Countershaft for main belt.

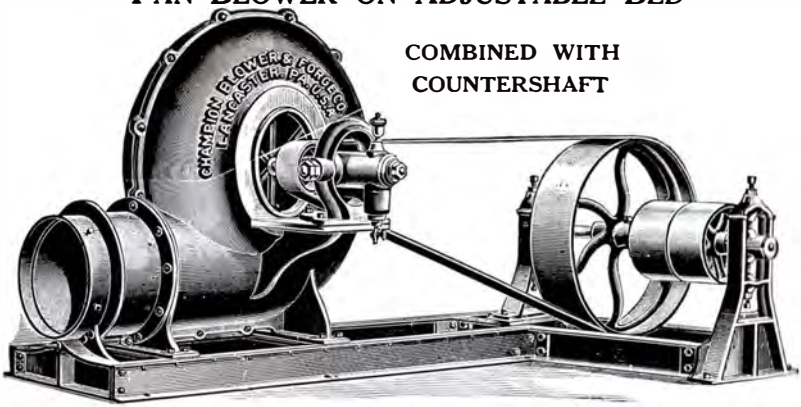
Size of Blower.	Diameter of Driving Pulley in Inches.	Diameter of Pulley for Main Belt in Inches.	Diameter of Shaft.	Price with One Driving Pulley.	Code.
½	12	4	⅞	$16.00	*Firmilatis*
1	14	5	1	19.50	*Firmandis*
2	16	6	1⅛	23.00	*Firmantis*
3	18	7	1¼	29.50	*Firmarian*
4	21	8	1⅜	36.00	*Firmasters*
5	26	9	1⅝	43.50	*Firmatoris*
6	30	10	1¾	50.50	*Firmamentura*
7	32	12	2	65.50	*Firmature*
8	36	14	2¼	80.50	*Firmeis*
9	40	16	2½	104.00	*Firmicus*
10	44	18	3	125.00	*Firmiana*

This cut shows the method of introducing Blast into Boiler and Heating Furnaces. Blast Gates are required in all Blast Pipes and when Boilers are set in nests, the Gates must be placed in the branch pipes to each boiler. This table applies only to Blast Pipes for one furnace. The sizes of Blast Pipes required as given in this table are for one furnace. Where two or more are connected and supplied from one main pipe, the size of a main pipe can be obtained by reference to the table for equalizing the diameter of pipes on page 235.



No. of Square ft. of Grate Surface.	Cubic Feet of Air to be Supplied.	Diameter in In. Blast Pipe Required.	No. of Square ft. of Grate Surface.	Cubic Feet of Air to Supplied.	Diameter in In. Blast Pipe Required.
5	200	3½	60	1,935	10½
10	375	4	80	2,700	12
15	560	4¾	95	3,670	14
20	760	5½	125	4,850	16
30	1,000	7⅛	225	6,115	18
40	1,427	9	300	8,155	21

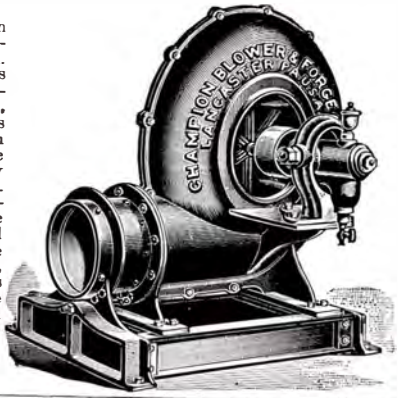
THE CHAMPION FAN BLOWER ON ADJUSTABLE BED



COMBINED WITH COUNTERSHAFT

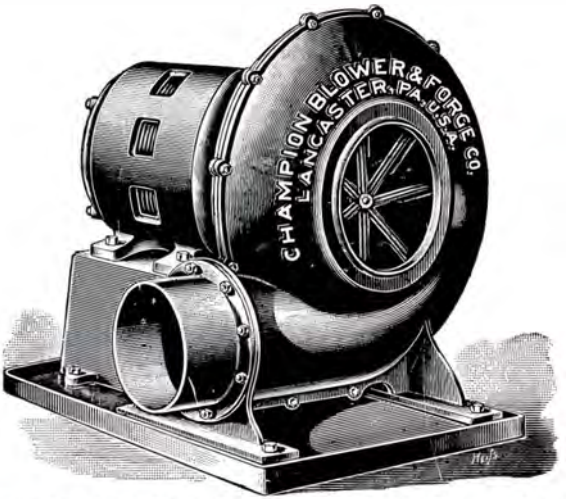
THE CHAMPION FAN BLOWER ON ADJUSTABLE BED

The cuts represent the Champion Fan Blower on an adjustable bed, and the adjustable bed with countershaft combined. Nos. 6 to 10 inclusive are the only sizes furnished with adjustable bed, or with adjustable bed and countershaft combined. Only bottom horizontal discharge blowers are fitted up in this style. The foundation is constructed of steel beams, to which the blower is bolted, and upon which it is readily adjustable by means of the shackle-bolt. The shaft of the blower is thus kept in perfect alignment with the countershaft, the belts track evenly, run smoothly, and wear well. Any required tension may be brought upon the belts while running, thus preventing inconvenience and loss incident to a stoppage of the blower while work is in progress. The boxes are fitted ith special continuous oiling devices so that the countershaft may be run at high speed for a long period without danger from heating and cutting.



No. of Blower.	Outside Diam. of Outlet in Inches.	Diameter of Pulley Driving Blower.	Diam. of Pulley Driven by Main Belt from Line Shaft.	Pulleys. Diameter in Inches.	Pulleys. Face in Inches.	Code.	Price with Bed without Countershaft.	Price with Bed and Countershaft.	Code.
6	11	30	10	6	4¾	*Fisgonear*	$108.00	$200.00	*Fisgadas*
7	12½	32	12	6¾	5½	*Fisguemos*	132.00	260.00	*Fisgado*
8	14⅜	36	14	8	6½	*Fisgues*	175.00	330.00	*Fisgadosa*
9	16¾	40	16	9	8	*Fishable*	290.00	490.00	*Fisgar*
10	18½	44	18	10	9½	*Fishbeam*	370.00	600.00	*Fisgaran*

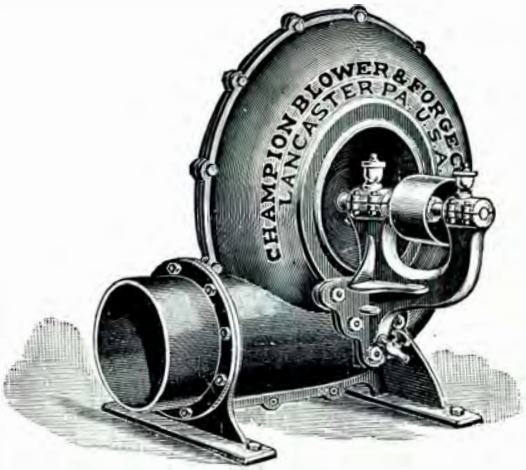
THE CHAMPION ELECTRIC DRIVEN FAN BLOWERS AND EXHAUST FANS



The Champion Electric Driven Fan Blowers and Exhaust Fans are all equipped with the most modern type and design of Motor—guaranteed in all cases to produce the best results wherever applied. The Motor and Blower are both placed on the same base—holding them firmly in place. The Blast Wheel is attached direct to the Motor Shaft.

No.	Speed.	H.P.	Pressure.	Capacity.	110 or 220V D.C.	110 or 220V 60 Cycles Single Phase.	220V 60 Cycles 2 or 3 Ph.
½	1,750	¼	1 oz.	150 cu. ft.	$ 63.00	$ 67.00	$ 67.00
½	3,500	¼	2½ "	480 " "	90.00	90.00	90.00
1	1,750	½	1 "	250 " "	70.00	75.00	75.00
1	3,500	½	3 "	600 " "	145.00	145.00	145.00
2	1,750	¾	1 "	390 " "	150.00	150.00	150.00
2	3,500	2	3½ "	750 " "	270.00	260.00	215.00
3	1,750	½	1½ "	600 " "	160.00	160.00	160.00
3	3,500	3	4½ "	1,200 " "	330.00	.....	245.00
4	1,750	1	2 "	900 " "	265.00	265.00	265.00
4	3,500	7½	6 "	1,850 " "	600.00	.....	600.00
5	1,150	¾	1 "	1,000 " "	275.00	275.00	275.00
5	1,750	2	2½ "	1,500 " "	325.00	330.00	250.00
6	1,150	1	1½ "	1,500 " "	325.00	300.00	300.00
6	1,750	3	3½ "	2,400 " "	350.00	350.00	340.00
7	850	2	1 "	1,900 " "	480.00	420.00	340.00
7	1,150	5	2 "	2,700 " "	500.00	.....	390.00
7	1,750	15	4⅓ "	4,000 " "	.....	.....	750.00
8	850	5	1½ "	3,100 " "	690.00	.....	530.00
8	1,150	7½	2½ "	4,200 " "	720.00	.....	720.00
8	1,750	25	6 "	7,000 " "	.....	.....	1,275.00
9	850	10	2 "	4,800 " "	1,100.00	.....	900.00
9	1,150	20	3½ "	6,400 " "	1,200.00	.....	1,125.00
10	850	10	2½ "	6,800 " "	1,200.00	.....	975.00
10	1,150	25	5 "	9,600 " "	.....	.....	1,450.00

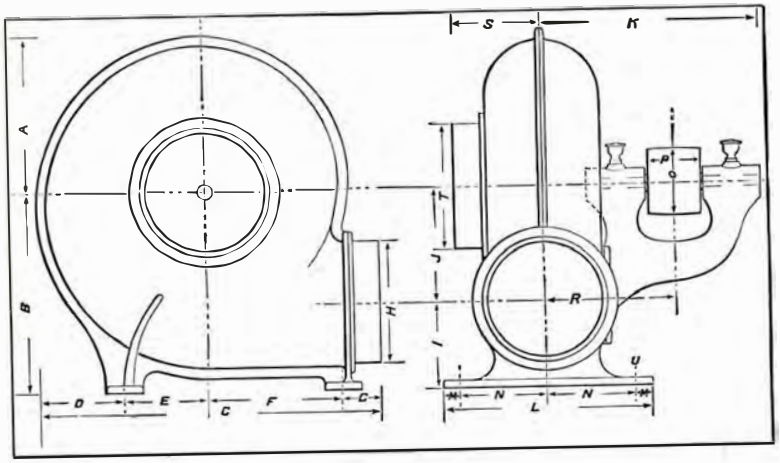
THE CHAMPION EXHAUST FAN



The Champion Exhaust Fan is constructed entirely on mechanical principles. Both journal bearings are on one side, allowing no grit or dust to reach them. The Champion Exhaust Fan is especially adapted for ventilating mines and all underground apartments, public buildings, refrigerating in slaughter houses, steamers, cars, etc., removing dust from sand and emery wheels, rag and cotton pickers, grain elevators, buffing machines used by shoe manufacturers, for taking away smoke and gas generated in blacksmith shops, manufacturing establishments and chemical works; steam and vapor from paper machines, and all drying cylinders and drying rooms, sweat from mill stones, offensive odor from try kettles, and dyeing establishments, etc. The Champion Exhaust Fan is regularly made bottom horizontal discharge either right or left hand, *i.e.*, with pulley on right or left side when facing the discharge. The Champion Exhaust Fans can be made top horizontal or upright discharge, for which an extra charge of 10 per cent. is made. The Champion Exhaust Fans are built in the most workmanlike manner; the bearings are long and heavy, the shafting is hammered cast steel, turned and polished with the utmost care.

No. of Exhauster.	Price.	Weight Each, Pounds.	Height in Inches.	Outside Diameter of Inlet.	Outside Diameter of Outlet.	Diameter of Pulley.	Face of Pulley.	Revolutions per min. 2-oz. Blast for Boiler Fires.	Revolutions per min. 4-oz. Blast for Forge Fires.	Code.
½	$16.00	25	12	4 3/8	3 3/4	2 1/4	1 1/2	3,300	4,500	*Fishfag*
1	20.00	45	15	5 1/8	4 5/16	2 11/16	2	3,000	4,000	*Firmament*
2	26.50	65	18	6	5 1/8	3	2 1/2	2,600	3,600	*Firman*
3	33.00	105	21	7 1/4	6	3 1/2	3	2,300	3,200	*Fiscal*
4	44.00	190	25	8 5/8	7 3/8	4 1/4	3 1/2	1,928	2,682	*Fissile*
5	58.50	270	29	10 1/8	9 3/8	5 1/2	4	1,638	2,279	*Fissure*
6	73.00	410	34	11	11	6	4 3/4	1,410	1,961	*Fisticuffs*
7	93.00	520	40	13 1/2	12	7	5 1/2	1,194	1,662	*Fistula*
8	120.00	900	45	15 5/8	14	8	6 1/2	1,018	1,417	*Fitful*
9	200.00	1,160	50	17 1/4	16	9	8	878	1,234	*Fitting*
10	266.00	1,480	57	18	18	10	9	766	1,065	*Fixture*

DIMENSIONS OF THE CHAMPION EXHAUST FANS



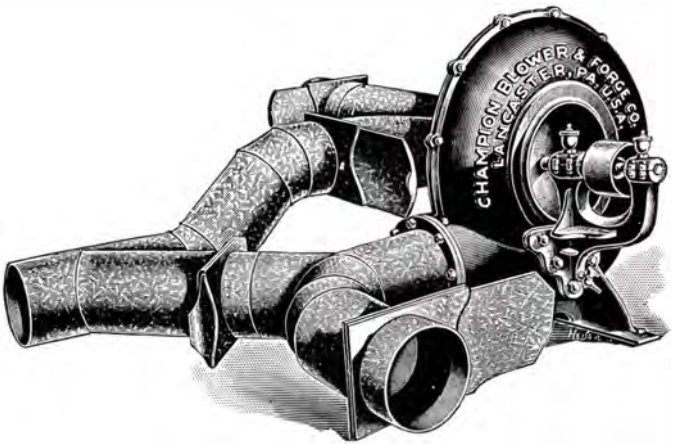
Dimensions in Inches.

No.	A	B	C	D	E	F	G	H	I	J
1/2	5 3/8	6 1/4	13 1/4	2 3/4	3 1/4	5 3/4	1 3/4	3 1/4	2 3/4	3 3/4
1	6 5/8	8	15 3/4	3 1/2	3 3/4	6 1/4	2 1/16	4 5/16	3 5/8	4 11/16
2	8 1/4	9 1/2	18 1/4	3 3/4	4 3/4	7 1/4	2 5/16	5 1/8	4 1/2	5 3/4
3	10	11 1/4	21 3/4	4 1/2	5 1/2	8 1/4	2 3/4	6	4 1/2	6 3/4
4	11 3/4	14	24 1/2	6	5 1/2	10 1/4	2 3/4	7 1/4	6	8
5	12 3/4	16	27 3/4	6 3/4	6 1/2	11	3 1/8	9 1/8	6 1/2	9 1/2
6	14 1/2	18 1/2	31 1/4	7 3/4	7 1/2	12 1/2	3 1/2	11	8	10 1/2
7	17	22	36	9	9	15	3	12 1/4	10	12
8	20	25 1/4	42	10 3/4	10 1/4	17 1/2	3 1/2	14 1/2	10	14 3/4
9	23	27 1/2	46 1/2	12 1/4	11 1/4	19	3 1/2	16 3/4	11 1/4	16 1/4
10	25	32	52	13	13 1/2	21 1/2	4	18	13 1/4	18 3/4

No.	K	L	M	N	O	P	R	S	T	U
1/2	6 1/2	8	1/2	2 3/4	2 1/4	1 1/2	4	3 1/2	4 7/8	5/16
1	8 1/8	8 3/4	1/2	3 1/2	2 7/16	2	5	4 1/8	5 5/8	5/16
2	9 3/4	9 7/8	1/2	4 1/8	3	2 1/2	6	4 3/4	6	5/16
3	11 3/8	11 1/4	1	5	3 1/2	2 1/2	6 3/4	5 1/4	7 1/4	5/16
4	14 5/8	14 1/4	1 1/4	6	4 1/4	3 1/2	8 3/4	5 3/4	8 1/2	5/16
5	17	16 3/4	1 1/4	7	5 1/8	4	7	7	10 1/2	5/16
6	20	19 3/4	1 1/2	8 1/4	6	4 1/2	12	8 1/4	11	3/8
7	21 1/4	22	1 1/2	9 1/2	7	5 1/2	13	9	13 1/2	3/8
8	26	25 1/2	2 1/2	10 3/4	8	6 1/2	16	10 1/4	15 1/2	7/16
9	29	28	2 1/2	11 1/2	9	8	17	12 1/4	17 1/4	7/16
10	30 1/2	32	2	14	10	9	18 1/2	13	18	7/16

THE CHAMPION COMBINATION BLOWER-EXHAUSTER

Especially Adapted for Mine Service

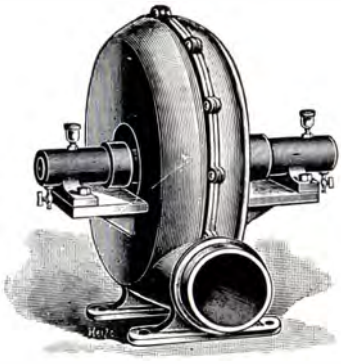


The above illustration shows our four-gate system of blast-gate and piping in general use, for converting a blower situated at the surface into an exhaust fan, or vice-versa. In mine ventilation it obviates the use of an exhaust fan in most instances, but in all mines where blasting is done it is essential that the smoke of the blast be quickly removed, so that mucking and tramming may begin shortly after the blast has been fired, and as little time be lost as possible.

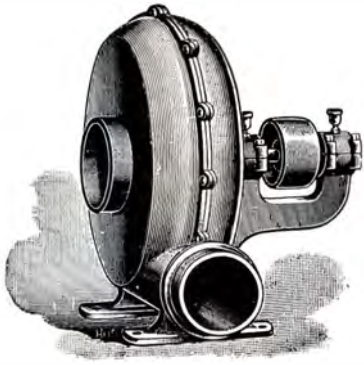
By means of this piping the blower is temporarily turned into an exhauster, and after the smoke has been drawn out and work commenced, manipulation of the blast gates causes the fan to resume its normal function of blower and to supply the workings with pure air.

We furnish the fan only.

THE CHAMPION EXPERIMENTAL BLOWERS AND EXHAUST FANS



Blower.



Exhaust Fan.

The Champion Experimental Blowers and Exhaust Fans are constructed like the Blowers used on many of our Forges and Hand Blowers. While they are built in the most practical manner for hand power, for steam power we can only recommend them where a light current of air is required. They are built to meet a demand for a cheap Power Blower and Exhaust Fan. For a high speed and strictly high grade and substantial Power Blower or Exhaust Fan, refer to pages 240 and 248.

This Blower is intended for blowing fires in portable and small stationary boilers, also for forge fires and various purposes where a small current of air is desired, and the Exhaust Fan is also intended for light work.

No. 0 Champion Blower, 10 In. High, Diameter of Outlet 2⅜ In., will Blow one Fire. Weight 20 lbs. *Code—Faction* **$10.00**

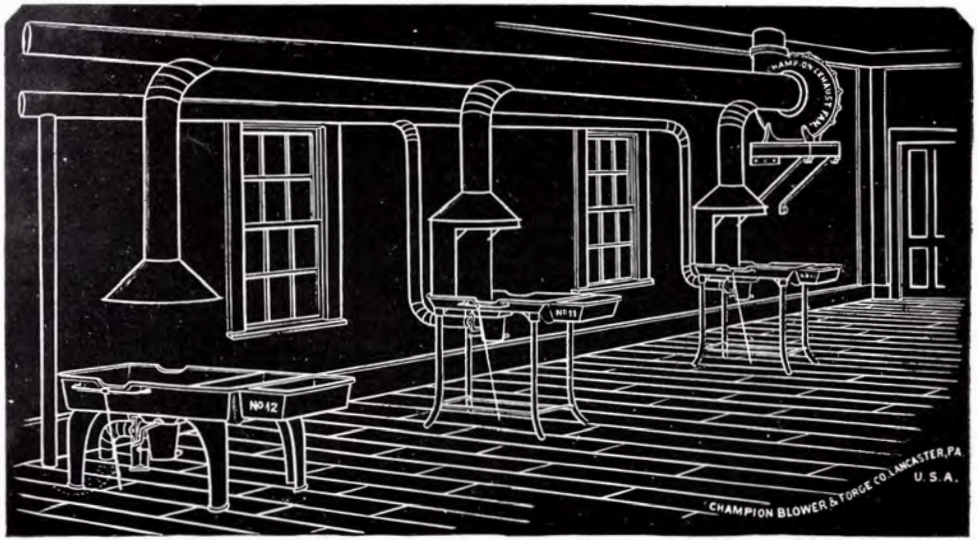
No. 00 Champion Blower, 14 In. High, Diameter of Outlet 3¼ In., will Blow Two Ordinary Fires. Weight 40 lbs. *Code—Factionist* **12.00**

No. 000 Champion Blower, 16½ In. High, Diameter of Outlet 4⅜ In., will Blow Three Ordinary Fires. Weight 50 lbs. *Code—Factitious* **16.00**

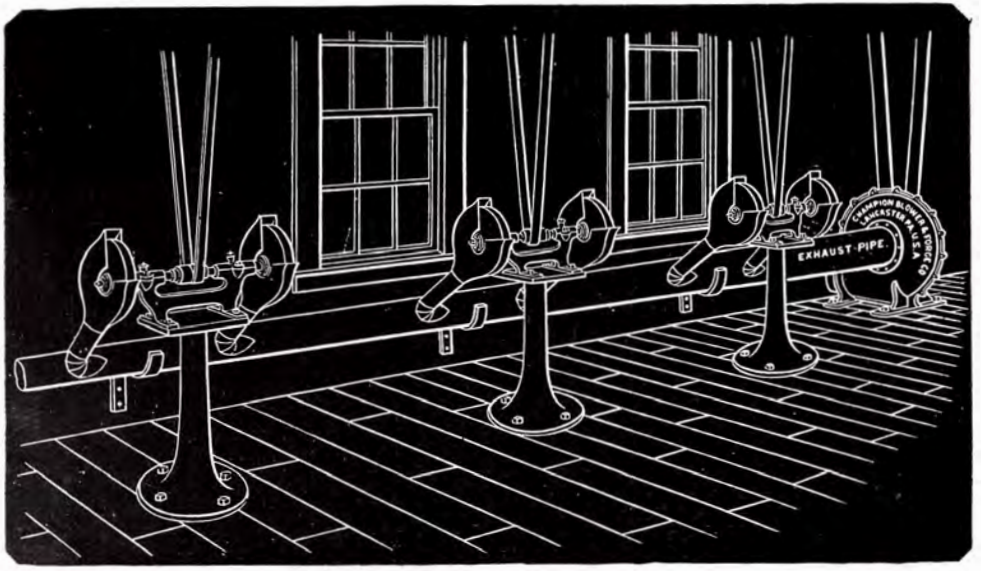
No. 01 Champion Exhaust Fan, 10 In. High, Diameter of Outlet 3 In., Diameter of Inlet 3½ In. Weight 20 lbs. *Code—Fabrique* **10.00**

No. 002 Champion Exhaust Fan, 14 In. High, Diameter of Outlet 3¾ In., Diameter of Inlet 4¼ In. Weight 40 lbs. *Code—Fabrilitas* **12.00**

No. 0003 Champion Exhaust Fan, 16½ In. High, Diameter of Outlet 4¼ In., Diameter of Inlet 5⅜ In. Weight 55 lbs. *Code—Fabulation* **16.00**

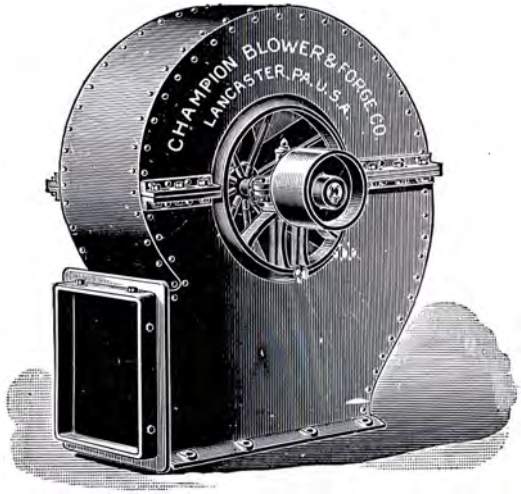


This diagram illustrates a blacksmith shop fitted up with power forge fires. The Stationary Forges Nos. 11 and 12, illustrated on pages 86 and 87 are placed in their most convenient position, and each hood is connected with the Champion Exhaust Fan in order to exhaust the smoke and gas from the smith fires. Also a view showing how the blast pipes should be connected. The principle given in the diagram will always result satisfactorily.



The Champion Exhaust Fan Applied to Emery and Polishing Wheels

CHAMPION STEEL PLATE BLOWER



The Champion Steel Plate Blower is built to meet a demand of a large fan to move a large volume of air at a low velocity with the greatest economy of power, as compared with the movement of the same quantity of air at a higher pressure by a smaller fan. A number of uses to which blowers are now applied with marked success require a large quantity of air at an average pressure. Heretofore, the custom of large plants has been to use for such service several Champion Fan Blowers of sufficient combined capacity. To accomplish the same work with one blower we have built the Champion line of Steel Plate Fans. The Blower has two inlets, one on each side of the case. The Champion Steel Plate Blower is guaranteed to be built in the same high standard in way of material or workmanship found in our entire line of tools.

These Fans are built both right or left hand, Bottom or Top Horizontal, up blast or down blast. The Champion Steel Plate Fan is adapted for heating, drying, ventilating and forcing draft through steamboats, to batteries of boilers in electric or other large power plants, and for places where the greatest number of cubic feet of air is required. The running parts are proportioned for strength and durability for use where it is important to have a strong and reliable machine.

Height in Inches.	Inside Size of Outlet in Inches.	Inside Diam. of Inlet.	Pulleys.		Average Speed	Cap. Cu. ft. Air at 1 oz. Press.	Price.	Code.
			Diam.	Face.				
50 in.	18½ x 18½	24¾	9	7	693	11440	$220.00	*Flexible*
60 "	22½ x 22½	26⅝	10	8	650	16120	350.00	*Flexile*
70 "	26 x 26	34¼	11	9	509	22880	480.00	*Flexion*
80 "	29¾ x 29¾	39⅛	12	10	426	30160	560.00	*Flexor*
90 "	33½ x 33½	43	14	11	376	39000	690.00	*Flexure*
100 "	37½ x 37½	45¾	16	12	340	48360	840.00	*Flexa*

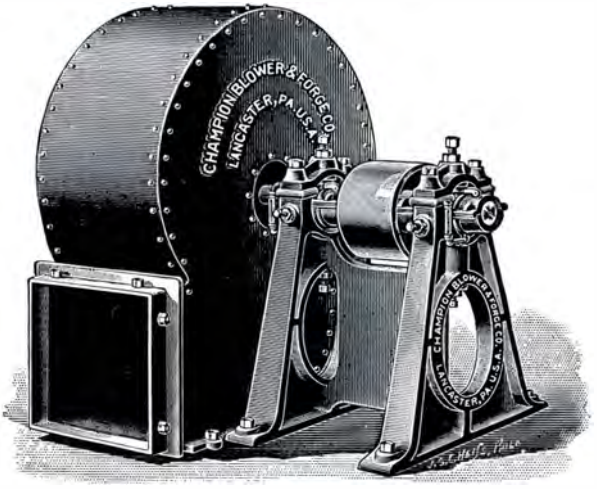
THE CHAMPION STEEL PLATE EXHAUST FAN

The Champion Steel Plate Exhaust Fan is an Exhauster for handling refuse from wood-working machinery, barking machines, dust and trimmings from shoe machinery, dust from tumbling barrels, emery and polished wheels, smoke and gases from blacksmith shop, cotton or for handling light stock of any description and when used in connection with hot blast apparatus, for conveying and distributing heat to hot rooms or dryers. They are built heavy and strong and suitable, wherever a large capacity of work is required. The Champion Steel Plate Exhauster Shell or Steel case is substantially built to a large cast-iron base, the base taking the part of a foundation to build from. The Journal Bearings are our Standard Power Blower bearings, securely bolted to the base. The shaft and wing revolving in their bearings are dependent on the base for their solidness, doing away with all vibration as the running of the Fan depends entirely on the solid base and has no connection with the steel case. The Champion Steel Plate Exhauster is built right or left hand, top or bottom, horizontal or upright discharge. The right hand and bottom horizontal is shipped when no special order is given. The objects of the various discharges are to keep both main suction and discharge pipes straight as possible. When a turn must be made make it as large radius as possible. To avoid cross-belting see that the pulley is on the proper side of the case right or left hand side. Any discharge can be had without extra cost if specially ordered.

The size of a Shaving Exhauster required must be determined by the size of the main suction pipe. The size of this depends upon the size and total number of branch pipes leading to the machines. Branch pipes vary in diameter from 3 to 8 inches, according to size of machines and their distance from the main pipe. For a distance from the main suction pipe exceeding 25 feet the majority of branches should be increased in diameter 20 per cent. for each additional 20 feet. After having determined the proper size of pipe for each machine add together the areas of all the branches thus formed and the sum of these areas will give the area of the main pipe. Never use a smaller inlet than the areas of branch pipes, it being far better to add 15 to 20 per cent. to aggregate. Always figure the Exhauster larger in proportion to work to be done to handle material easily, it being well to have a reserve capacity; besides an extra machine may be added from time to time.

The workmanship and material on this Exhauster is warranted our best.

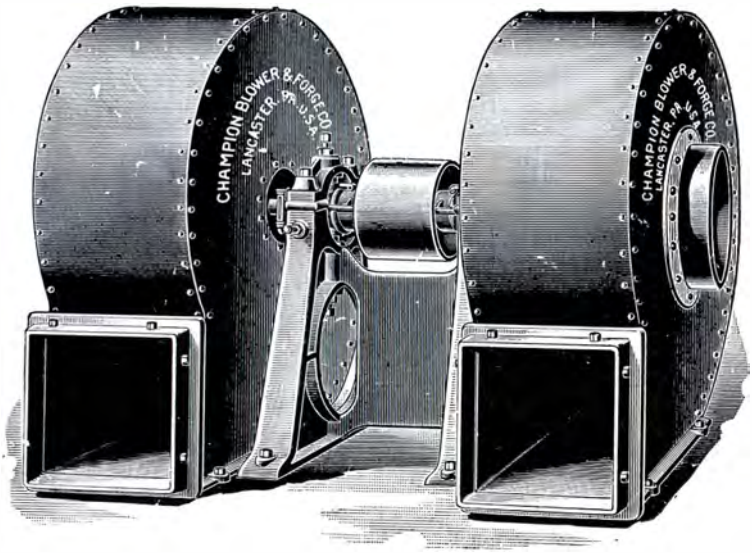
THE CHAMPION
PLANING MILL STEEL PLATE EXHAUST FAN



The Champion Planing Mill Steel Plate Exhausters a.e designed for removing shavings, chips, and saw dust from wood-working machinery, and for elevating cotton, cotton seed, hulls, etc., or any other fibrous material of the same nature. The bearings are both placed on one side, leaving the inlet unobstructed, so as to allow free ingress for such materials. The blast wheel or blast wheels are made almost entirely of steel, and so constructed that the machine cannot become clogged by the catching or lodging of any matter passing through it. On these Exhausting Fans we place our Patent Journal Box, which automatically stays in direct line, one Journal Box with the other. We supply with these Journal Boxes self-ring oilers. Both single and double Exhausters are built bottom horizontal, top horizontal and upright discharge.

Size.	Price.	Wt. Ea., Lbs.	Height of Shell.	Outside Diam. of Inlet.	Outside Square of Outlet.	Diam. and Face of Pulley.	R.P.M.	Code.
30 inches.	$90.00	500	30 inches.	11 inches.	11 inches.	5¼ x 5	1700 to 2600	*Flannel*
35 "	110.00	600	35 "	13 "	13 "	6 x 6	1500 to 2200	*Flush*
40 "	150.00	700	40 "	15 "	14¾ "	6¾ x 6¼	1300 to 2000	*Flask*
45 "	185.00	1,130	45 "	17 "	16⅞ "	8 x 7½	1100 to 1700	*Flasket*
50 "	220.00	1,225	50 "	19 "	18¾ "	8½ x 8½	1000 to 1500	*Flative*
55 "	280.00	1,400	55 "	21 "	20½ "	9½ x 9⅛	850 to 1400	*Flatten*
60 "	350.00	1,675	60 "	23 "	22¾ "	10¼ x 10	750 to 1250	*Flattery*

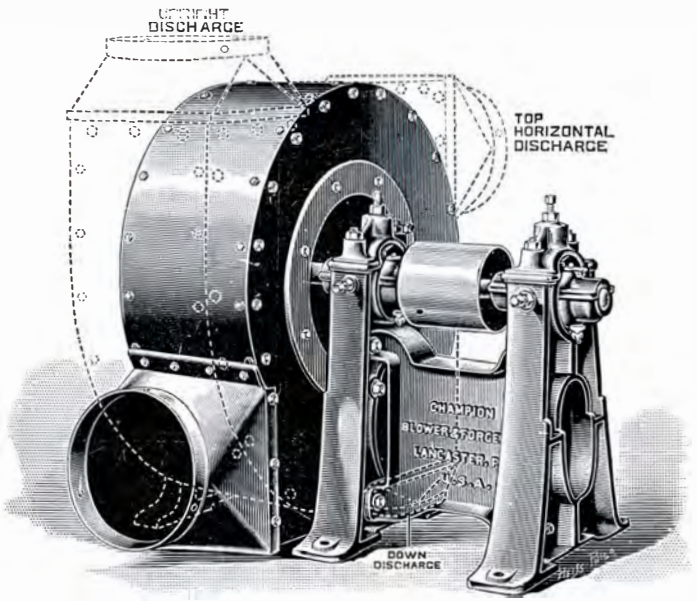
THE CHAMPION DOUBLE PLANING MILL STEEL PLATE EXHAUST FAN



The Champion Double Planing Mill Steel Plate Exhaust Fan is identically the same as the Single Steel Plate Exhauster on the opposite page. In many places a Double Exhauster is preferable to a large Single Exhauster, especially in large mills, where the Exhauster can be located in or near the center of the mill or machinery, and draw from both directions, as it brings the Exhauster nearer the work than it would with a Single Exhauster located at one end of the mill.

Size.	Price.	Wt. Ea., Lbs.	Height of Shell.	Outside Diam. of Inlet.	Outside Square of Outlet.	Diam. and Face of Pulley.	R.P.M.	Code.
30 inches.	$170.00	735	30 inches.	11 inches.	11 inches.	6 x 6	1700 to 2600	*Flatulent*
35 "	200.00	850	35 "	13 "	13 "	7 x 7	1500 to 2200	*Flaunt*
40 "	260.00	1,000	40 "	15 "	14¾ "	8 x 8	1300 to 2000	*Flavor*
45 "	340.00	1,500	45 "	17 "	16¾ "	9 x 9	1100 to 1700	*Flavorous*
50 "	400.00	1,800	50 "	19 "	18¾ "	10 x 10½	1000 to 1500	*Flawy*
55 "	500.00	2,280	55 "	21 "	20½ "	11 x 11	850 to 1400	*Flaxen*
60 "	640.00	2,600	60 "	23 "	22¾ "	12 x 11½	750 to 1250	*Flaxy*

THE CHAMPION ADJUSTABLE PLANING MILL STEEL PLATE EXHAUST FAN



The Champion Adjustable Planing Mill Steel Plate Exhausters are designed for removing shavings, chips and sawdust from wood-working machinery, and for elevating cotton, cotton seed, hulls, etc., or any other fibrous material of the same nature. The bearings are both placed on one side, leaving the inlet unobstructed, so as to allow free ingress for such materials. On these Exhausting Fans we place our Patent Journal Box, which automatically stays in direct line, one Journal Box with the other. We supply with these Journal Boxes self-ring oilers.

These Exhausters have housings suitable to either hand or any discharge. All changes can be made in a few minutes, and on the outside of the housings. The advantages of the adjustable Exhauster are shown in the fact that one exhauster will meet any requirements regardless of the hand or discharge, avoiding all cross belts and sharp angles.

Size.	Price.	Wt. Ea., Lbs.	Height of Shell.	Outside Diam. of Inlet.	Outside Diam. of Outlet.	Diam. and Face of Pulley.	R.P.M.	Code.
25 inches.	$80.00	400	26½	11	11	5 x 4½	2100 to 3100	*Frat*
30 "	90.00	500	32½	13	13	5½ x 5	1700 to 2600	*Fratus*
35 "	110.00	600	37½	15	15	6 x 6	1500 to 2200	*Fraternity*
40 "	150.00	700	42½	17	17	6¾ x 6¼	1300 to 2000	*Fratamus*
45 "	185.00	1,050	48¾	19	19	8 x 7½	1100 to 1700	*Frater*
50 "	220.00	1,225	53	21	21	8½ x 8½	1000 to 1500	*Fratora*
55 "	280.00	1,400	59	23	23	9½ x 9⅛	850 to 1400	*Fratola*
60 "	350.00	1,675	66¾	25	25	10½ x 10	750 to 1250	*Fratotar*

Standard Blast Wheel for Champion Steel Plate Planing Mill Exhaust Fan

Fig. 1.

Blast Wheel for Light and Fine Material

Fig. 2.

Blast Wheel for Stringy Material

The Blast Wheels used in Champion Steel Plate Exhaust Fans are constructed upon a heavy cast-iron hub. The spokes to which the blades are attached and riveted, are tee steel cast in the hub, assuring absolute strength and rigidity. The blades are of heavy steel plate riveted to the spokes.

Fig. 1 illustrates the Standard Blast Wheel constructed particularly for heavy, bulky or abrasive material and is extra heavy in all dimensions and sizes.

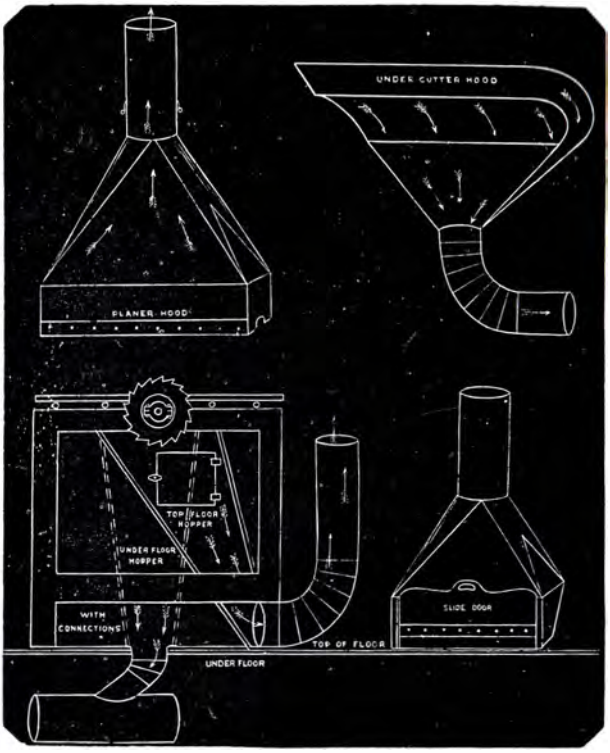
Fig. 2 shows the Blast Wheel which can be applied where light and fine material is handled, and is constructed for such conditions.

Fig. 3 illustrates the blast wheel where cotton, wool, or textiles, or long stringy material of any kind is to pass through the Exhaust Fan, whereby this material will not clog with them.

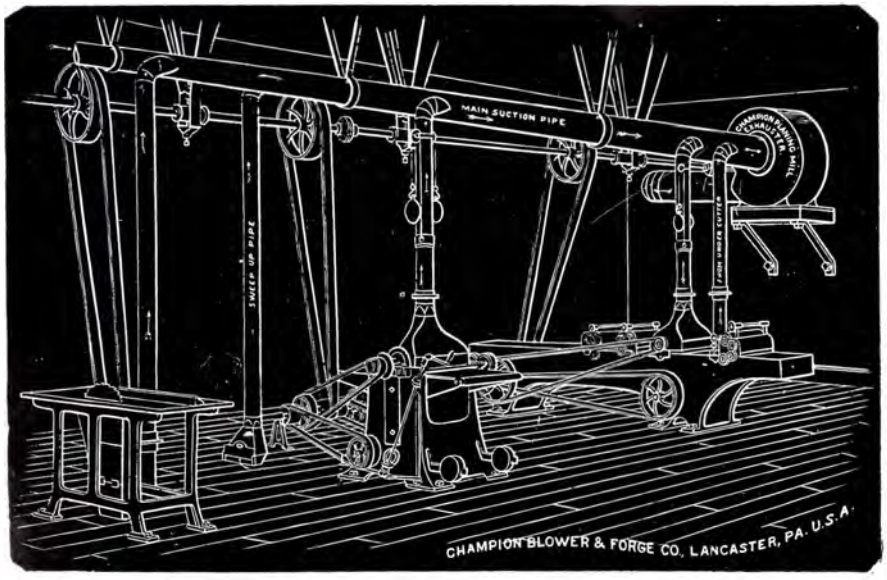
Fig. 3.

Any of these Blast Wheels not regularly supplied can be had if specially ordered.

ILLUSTRATIONS OF HOODS



The above outlined Hoods are intended to give an idea of the different shapes required to exhaust from wood-working machinery. While many machines require special shaped Hoods, the principle of connecting to the machinery and exhauster suction pipes are practically the same. Particular attention must be given to fit the Hoods closely to the machine so that the air must pass up and around the material that is being worked. Never take out of main suction pipe two branches, directly opposite. The Exhauster should always be located so that the main suction and discharge pipes are a straight line. Hoods can be made of sheet metal or wood. The success of the Exhauster largely depends on their fit to the machine. Leaking must be avoided; stay sides of Hoods with angle iron, always arrange the Hood on a machine, the direction the shavings fly, so the cuttings will be thrown directly into the pipes connected to Hood. Under Cutter Hoods should be fitted as closely under the cylinder, so the shavings will drop down into the pipes. Hoods can be made with telescopic joint and counter-balancing weights, when desired.



The Champion Planing Mill Exhauster, Showing Connections

INSTRUCTIONS

FOR CONNECTING CHAMPION PLANING MILL EXHAUSTERS WITH WOOD-WORKING MACHINERY

Always locate Exhauster so as to have main suction and discharge pipes run in a straight line from the inlet and outlet of the Exhauster. Make all branch pipes as short as possible and connect them as shown in diagram of pipe connections on page 239.

The outline cuts of hoods and branch pipes, page 260, makes it an easy task to select the proper size hoods and branch pipes. The sizes of branch pipes vary in diameter from 3 to 5 inches for small machinery, such as Jointers, Rip Saws, and Cut-off Saws. The list herewith given are the extreme sizes of branch pipes. Many plants working successfully are using smaller diameters; this largely depends upon the length of pipes and the condition of the material passing through the machine. 18-inch Rip and Cut-off Saws, Split Saws, 12 to 20-inch Swing Circular Saws; Band Saws, Groove Saws, take 4-inch pipe; 24-inch Rip Cut-off Saws, Bolling Saw, Combination Saw, $\frac{3}{4}$ to 1-inch Endless Resaw, 18-inch Circular Saw, Gainer, Dado, Panel Raiser, Rounder Each head, Drum Sander 12 to 15 inches long, Sand Belts, Swing Sander, Dovetailing Machine, take 5-inch pipe; 24-inch Heavy Cut-off Saw, 24- to 30-inch Circular Resaw, Planers with knives 24 to 26 inches long, Buzz Planer with knives 30 inches long, take 6-inch pipe; Planer with knives 28 to 36 inches long, Drum Sanders 30 to 40 inches long, take 7-inch pipe; Invincible Sander, 7- to 8-inch pipe. Blast gates should be attached to all branch pipes and sweep-ups, to shut off when not in use, to economize power. Each blast gate slide should have an opening in its center from $1\frac{1}{2}$ to 2 inches in diameter to maintain a current of air through the branches and preventing clogging of the branches when not in use.

The main suction pipe should always be left open at extreme end. Sweep-up pipes are usually made 6 inches in diameter. The above dimensions are for pipes 25 feet in length and less. Where they exceed this length the diameter should be increased 10 to 20 per cent.

Do not connect branches to the underside of the main pipe, but always on the side or top of same. Closely fitting hoods, elbows or turns of long radius and large and tightly jointed pipes are indispensable to economical operation.

Shaving or dust pits must have an opening or ventilator at top at least six times the area of the discharge pipe or pipes leading into shaving and dust pits.

Use always the lowest speed that will do the work, and always run the Exhauster up to that speed.

THE CHAMPION BLAST GATE

PRICE-LIST

2	inch	Iron.	Weight	2	lbs.	*Code*—*Flay*	$	1.00
2½	"	"	"	5	"	" —*Flee*		1.25
3⅛	"	"	"	8	"	" —*Fleck*		1.50
4¼	"	"	"	10	"	" —*Flection*		2.00
5	"	"	"	12	"	" —*Fledge*		2.25
6⅛	"	"	"	15	"	" —*Fleen*		2.50
7¼	"	"	"	25	"	" —*Fleshy*		3.00
8¼	"	"	"	35	"	" —*Fleece*		3.50
10	"	"	"	40	"	" —*Fleecy*		5.00
12	"	"	"	50	"	" —*Fleet*		6.50
14	"	"	"	65	"	" —*Fleeting*		8.00
16	"	"	"	80	"	" —*Flemish*		12.00
18	"	"	"	100	"	" —*Fleta*		16.00
20	"	"	"	150	"	" —*Flanab*		18.00
24	"	"	"	200	"	" —*Flevat*		21.00

The Above are Outside Measurements

THE CHAMPION DISC WHEEL AND MINE FAN

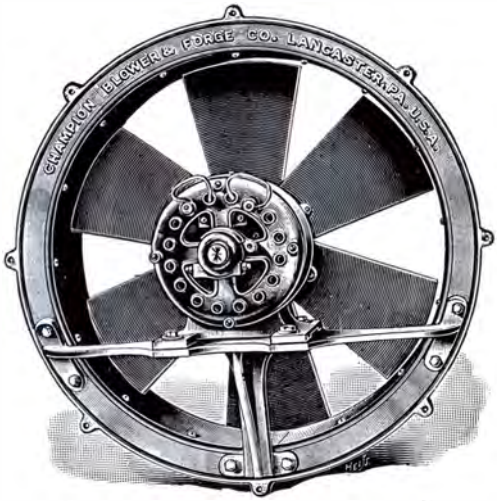
The New Champion Disc Wheel and Mine Fan is strictly first class, built strong and substantial. Its blades are made of special rolled steel, mechanically fitted into a grooved hub, where they are securely fastened. They are built with workmanship of the very highest grade, and run entirely noiseless, and are guaranteed to give perfect satisfaction.

The bearings are of our standard blower type, and the shaft is made from hammered steel, extra length, so that pulleys can be placed on either side, thus preventing cross belts.

These fans are especially constructed for ventilating, and can be used for factories, laundries, restaurants, offensive closet ventilation; in fact, any place where a supply of fresh air is desired.

Diameter of Wheel, Inch.	Price.	Code.	Weight.	Diameter of Pulley.	Face of Pulley.	Diameter of Wheel, Inch.	Price.	Weight.	Code.	Diameter of Pulley.	Face of Pulley.
18	$ 40.00	*Flecker*	95	4	2	48	$125.00	410	*Flimsy*	9	4
24	50.00	*Flight*	110	4	2	54	175.00	450	*Flinch*	9	4
30	65.00	*Filter*	165	6	2	60	250.00	540	*Fling*	10	5
36	85.00	*Flighty*	220	6	2	72	300.00	625	*Flinty*	12	5½
42	110.00	*Flimsiness*	295	8	3½	84	350.00	800	*Flip*	14	6

THE CHAMPION ELECTRIC DISC WHEEL



The Champion Electric Disc Wheels are of the most compact and up-to-date construction possible, and are especially adapted for removing offensive odors and supplying a sufficient quantity of fresh air.

The motor is attached to the frame of the disc wheel by a bracket and is furnished complete and ready to be installed in an opening in the wall or in the window.

The Champion Electric Disc Wheels are made in five sizes, all current and voltages as listed below.

Electric Disc Wheels.				Direct Current.		Alternating Current 1, 2, 3 phase, 60 cycle.		Code.
Size.	Voltage of Motors.	Cubic Ft. Air Per Minute.	Approx. Weight Complete.	Speed R.P.M.	List Prices.	Speed R.P.M.	List Prices.	
12 in.	110–220	1,000	45 lbs.	2,700	$40.00	2,700	$ 40.00	*Fleckamus*
18 in.	110–220	2,200	100 lbs.	1,200	84.00	1,200	100.00	*Flibat*
24 in.	110–220	4,000	195 lbs.	900	102.00	900	145.00	*Fliwora*
30 in.	110–220	6,200	225 lbs.	900	130.00	900	210.00	*Fliway*
36 in.	110–220	12,000	350 lbs.	800	280.00	800	340.00	*Flyer*

TABLE OF SPEEDS, CAPACITIES, ETC., OF CHAMPION DISC WHEELS AND MINE FANS FOR MINE VENTILATION

	¼" Pressure			½" Pressure			¾" Pressure			1" Pressure			1¼" Pressure			1½" Pressure			2" Pressure			2½" Pressure			3" Pressure		
	C F M	R P M	H P	C F M	R P M	H P	C F M	R P M	H P	C F M	R P M	H P	C F M	R P M	H P	C F M	R P M	H P	C F M	R P M	H P	C F M	R P M	H P	C F M	R P M	H P
18"	1,000	625	20	2,100	725	.45	3,300	825	75	4,500	925	1.00	5,600	1050	1.75	6,800	1125	2 25	8,100	1400	4 00	9,400	1500	5 50	10,800	1600	7 00
24"	2,000	560	.25	3,500	650	.50	4,700	775	1 00	5,200	875	1.25	6,500	925	2.00	8,700	1025	3 00	10,500	1300	5 00	12,200	1400	7 00	13,900	1500	9 00
30"	3,500	500	.35	4,500	600	.75	6,000	725	1 50	7,900	825	2.00	9,900	875	2 50	11,900	975	3.75	13,900	1200	8 00	15,900	1300	10 50	17,900	1400	13 50
36"	6,000	450	.50	7,500	560	1 00	9,200	680	2.00	10,300	730	2.50	12,900	790	3 75	14,700	910	5 75	16,000	1120	11 50	19,000	1200	14 00	22,000	1300	17 00
42"	9,000	400	1.00	10,750	485	1.75	12,350	570	2.75	15,000	640	4.00	16,500	695	5.25	18,500	700	8 00	22,300	975	14 50	26,000	1000	19 00	29,500	1100	24 00
48"	12,200	350	1.25	14,700	435	2 25	16,700	500	3 50	18,700	560	5.25	21,000	615	7.00	24,200	700	10 75	29,000	860	19 00	33,800	1000	25 00	38,500	1100	31 00
54"	15,500	305	1.50	18,500	380	2 75	21,100	440	4 50	24,000	495	6 50	26,800	535	8 75	30,500	620	13.75	37,100	750	25 00	43,000	850	33 00	48,800	950	41 00
60"	18,500	280	2.00	22,500	340	3.50	25,700	400	5.50	29,500	450	8 00	33,800	485	11 00	38,000	560	16 00	45,500	685	32 00	53,000	770	44 00	60,000	850	56 00
72"	25,800	230	2.50	31,000	285	5 00	36,400	330	8 00	40,500	375	11.25	46,000	410	15.25	53,500	465	24 00	64,000	565	44 00	74,000	650	62 00	84,000	720	80 00
84"	35.500	200	4.00	43,500	245	7.00	49,500	275	10.75	54,000	315	15.50	61,500	340	21.00	70,500	400	33 00	85,500	485	62.00	100,000	560	85 00	114,000	620	110 00

If resistance is less than has been assumed in above table, the pressure will be lower and the volume of air delivered will be more and horsepower less.

TABLE OF SPEEDS, CAPACITIES, ETC., OF CHAMPION DISC WHEELS AND MINE FANS—OUTLET BEING UNOBSTRUCTED

Size Fan	C F M	R P M	H P	C F M	R P M.	H P	C. F. M.	R P. M.	H P	C. F. M.	R P. M	H P.	C. F. M.	R P M	H P.	C F M.	R P M	H. P.
18″	1,000	400	01	2,000	525	.05	3,000	625	.08	5,500	725	.15	8,000	850	.40	10,500	975	1.00
24″	1,900	325	.02	3,500	475	.08	6,000	575	.20	8,500	650	.40	11,000	800	.50	13,500	950	1.10
30″	3,000	275	.03	5,900	400	.10	8,400	510	.30	11,000	625	.50	13,300	750	.90	15,400	925	1.50
36″	5,400	230	.05	7,900	350	.15	10,400	460	.40	12,600	580	.85	14,900	695	1.40	17,000	815	2.40
42″	8,000	200	.06	11,000	300	.20	14,000	400	.50	17,000	500	1.10	20,000	600	2.00	23,000	695	3.10
48″	10,000	175	.08	14,000	260	.30	18,000	345	.75	22,000	430	1.50	26,000	520	2 60	30,000	600	4.25
54″	10,600	150	10	15,500	220	.35	21,500	300	.85	26,300	375	1.75	31,200	445	3 00	36,000	515	5.00
60″	14,200	140	.12	20,300	200	.50	26,400	275	1.20	32,600	345	2.40	39,800	415	4.00	45,000	480	6.50
72″	19,200	120	.20	28,000	170	.65	36,500	230	1.65	46,000	285	3.35	54,500	340	5.50	63,500	400	9.25
84″	27,000	100	.25	39,000	150	1.00	51,000	200	2.25	63,000	250	4.50	75,000	300	8.00	85,000	350	12.50

TELEGRAPHIC CODE TO NO. 44 CATALOGUE

Cable Address "Champion Lancaster" [Pennsylvania]

We are subscribers to the "LIEBER'S STANDARD," "WESTERN UNION," Bentley "A B C," and "A 1 TELEGRAPHIC CODE," either of which can be used if desired.

Habado—Rush . . . ordered and add for immediate shipment . . .
Habebamus—Rush order given on . . . and add for immediate shipment.
Haben—Rush order given . . .
Habenaria—Rush . . . and enter order for . . . to ship as soon as possible.
Habendorum—Rush . . . in order of . . . and follow balance as soon as possible.
Habendos—Rush . . . in order of . . . and follow balance at your earliest convenience.
Habhaft—Rush . . . and enter order for . . . to be shipped . . .
Habicht—Write how soon order for . . . will be shipped.
Habichuela—Telegraph how soon order for . . . will be shipped.
Habaqui—Ship at once.
Habest—Ship at once and follow with tracer.
Habarala—Ship at once at your earliest convenience.
Habascon—Ship at once if possible, if not possible wire how soon you can ship.
Habasque—Ship at once if possible, if not possible write how soon you can ship.
Habebat—Ship at once, in great hurry. Will consider the order filled today, unless we receive telegram from you stating otherwise.
Habit—Advise if order accepted.
Habitual—All orders are now shipped.
Habitudel—Alter our order to . . .
Hackle—Are in need of order—when may we expect it?
Hackney—Are now working on your order.
Haddock—Are shipping all we can today; will ship balance in . . .
Haggard—By what line have you shipped?
Haggle—Can ship immediately upon receipt of order.
Hail—Can be shipped in . . .
Hailstone—Can be shipped at once.
Hake—Can ship in about . . . from receipt of order.
Half—Can ship on or before . . .
Halibut—Can you execute order for . . . in . . .
Halloo—Can ship today, if we hear in time.
Halter—Can ship in one week from receipt of order if advised at once.
Hamlet—Can ship within two weeks from receipt of order, if advised at once.
Hammer—Can ship to-morrow.
Hammock—Can you ship immediately?
Hamper—Cannot ship before . . . have written.
Hamstring—Will ship at once.
Handle—Do not fill this order until you receive full instructions by mail.
Handsome—Enter order for.
Hang—Enter order for . . . specifications by mail.
Happen—Gave your agent an order some time ago . . . what is being done?
Happily—Has our order been shipped yet?
Happiness—Have filled your order in accordance with . . .
Harass—Have you not received order for . . . ?
Harbor—Hold for further instructions, our order of . . .
Hardly—How soon can you ship the following if ordered immediately?
Hardship—Hurry our order; very important.
Hardware—If ordered by telegraph promptly, we could ship in . . .
Hare—If you cannot ship at once, telegraph how soon.
Harem—We could ship in . . .
Harmful—If you have not shipped the . . . telegraph. When can we expect it then?
Harmonic—If you have not shipped the . . . write when we can expect it then.
Harmonize—Your order was filled on . . .
Harmony—Not in a particular hurry for the order.
Harness—Order of . . . not yet received; send tracer.
Harp—Order of . . . will be shipped immediately.
Harpoon—Order received too late for filling today, will be shipped to-morrow.

TELEGRAPHIC CODE

Harrow—Must be shipped today, or parties will cancel order.
Harsh—Rush order (by . . .).
Harvest—Ship at once, any portion of order.
Hash—Ship the whole order in one lot.
Hasp—Telegram received; fill order for . . .
Hassock—There is no particular hurry for this order, let it come in regular time.
Haste—We can ship part of your order as follows . . . will furnish balance in . . .
Hasten—We can furnish the following order at once.
Hatch—We have shipped the following part of your order; will forward balance in . . .
Hatchet—We hold order for further instructions.
Hatchway—What is the earliest date you can fill our order?
Hatter—When will goods be shipped that were ordered . . . ?
Haul—We place our order at once for . . . if you will deliver on . . .
Haunt—Will send regular order by mail.
Haven—Your letter of . . . received and have filled order in accordance with same.
Havoc—Your order contained in letter of . . . can be executed in . . .
Hawk—Your order contained in letter of . . . for . . . cannot be executed.
Hawker—Your order for . . . is ready for shipment; we await your further instructions.
Hay—Your order has been filled before receiving your telegram.
Haze—Your order was for . . .
Heart—Wire lowest discounts on . . .
Hearty—Write lowest discounts on . . .
Heave—Ship by freight via . . .
Heavy—Ship by freight, route as last.
Hector—Ship by rail and lake.
Hedge—Ship by all rail.
Heed—Ship by sail from New York.
Height—Ship by steamer from New York.
Helm—Ship by Morgan Line from New York.
Helmet—Ship by Mallory Line from New York.
Helper—Ship by Mallory Line and Sunset Route.
Hemlock—Ship by Express.

1 each	Donnesche
2 each	Donnone
3 each	Dosganzen
4 each	Donville
5 each	Doodarm
6 each	Dooddoener
10 each	Doodsink
12 each	Doodzonden
15 each	Doophemd
18 each	Doorbinden
20 each	Doorduwen
25 each	Doorloopen
30 each	Doorstaren
40 each	Dappierai
50 each	Dorippe
Can ship in 1 day	Alaesa
Can ship in 2 days	Alaesus
Can ship in 3 days	Alafdhol
Can ship in 4 days	Alafec
Can ship in 5 days	Alaftas
Can ship in 6 days	Alagaba
Can ship in 7 days	Alagabis
Can ship in 8 days	Alagabmoss

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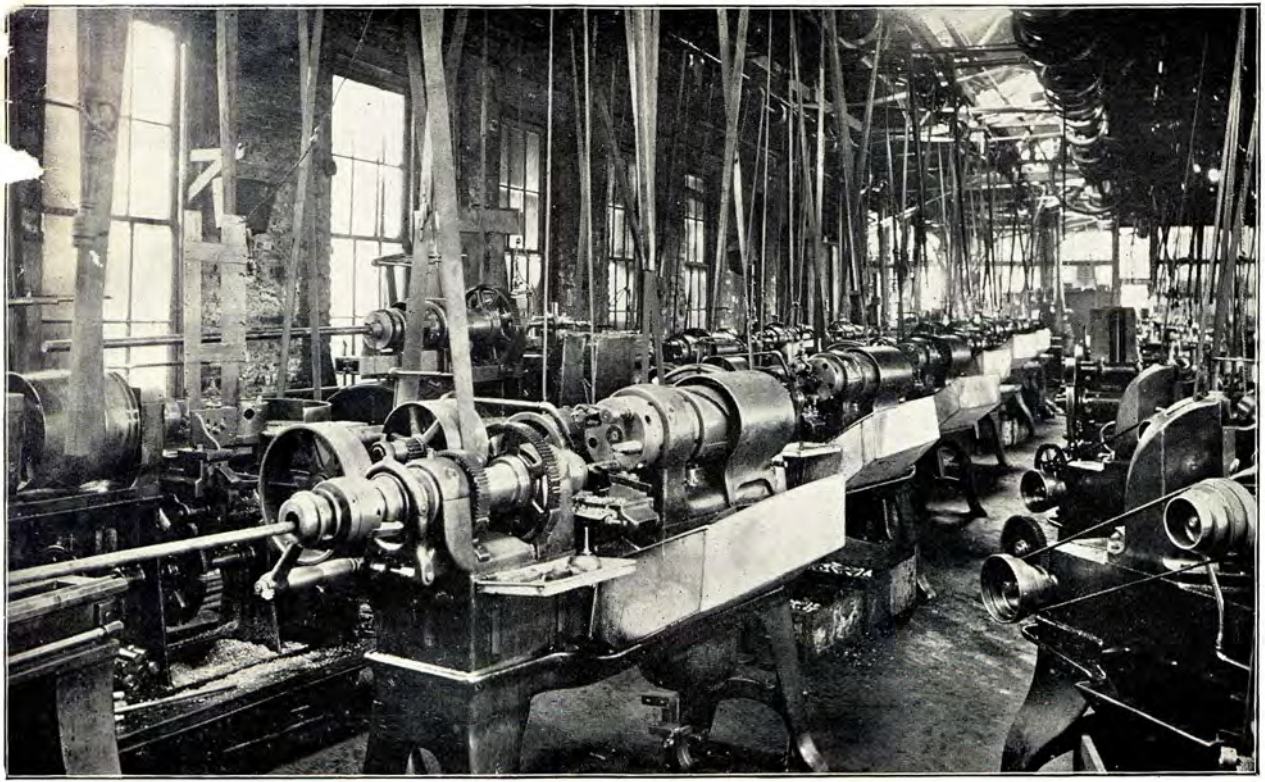
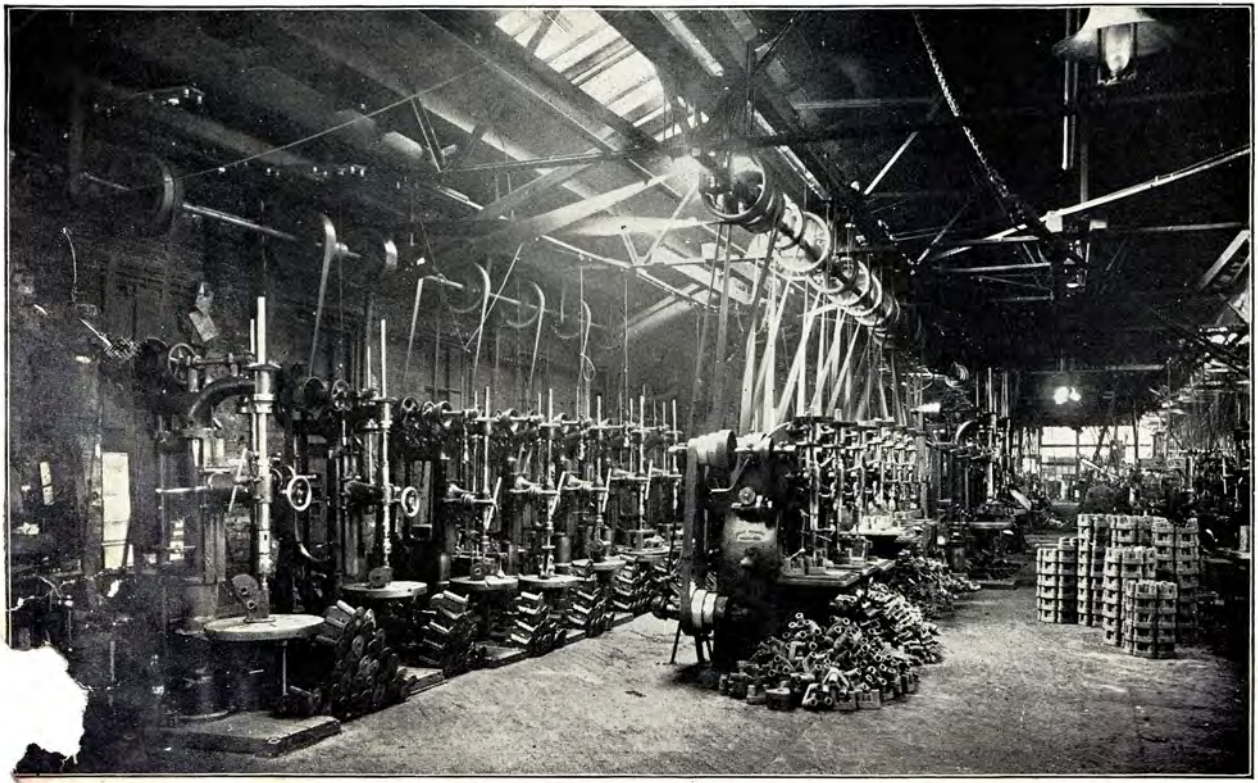


SECTIONAL PHOTOGRAPHIC VIEW SHOWING THE AUTOMATIC MACHINERY USED IN TURNING ALL PARTS FROM THE STEEL BAR FOR THE 400 CHAMPION STEEL BLOWERS



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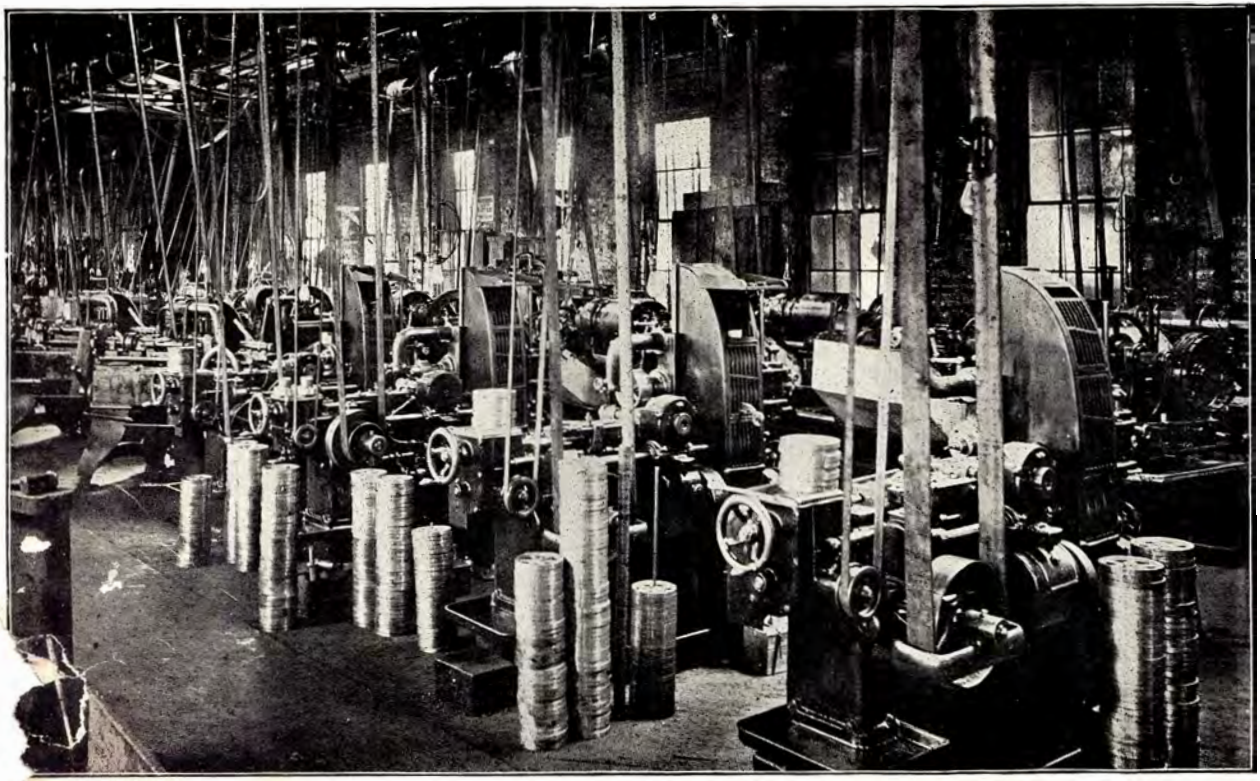

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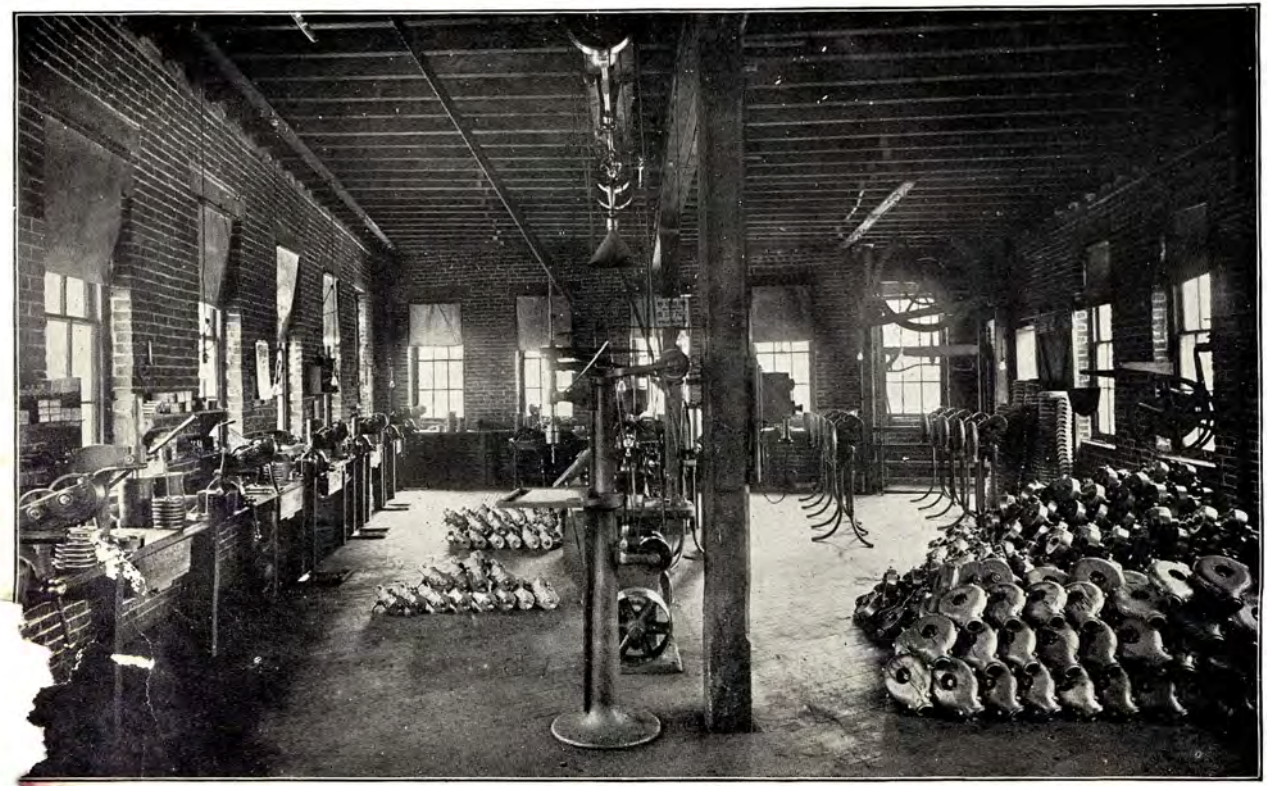

SECTIONAL PHOTOGRAPHIC VIEW SHOWING WHERE THE 400 CHAMPION STEEL BLOWERS ARE ASSEMBLED